THE ENGINEERING AND MINING JOURNAL AND COAL

Entered at the Post-Office of New York, N. Y., as Second-Class Matter.

VOL. XLII. OCTOBER 23. No. 17.

RICHARD P. ROTHWELL, C.E., M.E., ROSSITER W. RAYMOND, Ph.D., } Editors.

☞ Articles, communications, reports, documents, books—all things whatsoever belonging to the Editorial Department, should be thus addressed: MANAGING EDITOR ENGINEERING AND MINING JOURNAL, P.O. BOX 1833, New York City.

Cable address: "Rothwell," New York.

SUBSCRIPTION PRICE, including postage for the United States and Canada, $4 per annum; $2.25 for six months; all other countries in the Postal Union, $5 = 20s. = 25 francs = 20 marks. All payments must be made in advance.

Communications for Mr. RAYMOND should be addressed to ROSSITER W. RAYMOND, P.O. Box 1465, New York. Articles written by Mr. RAYMOND will be signed thus *; and only for articles so signed is he responsible.

FILE COVERS will be sent by mail for $1.25 or delivered at office for $1 each.

Advertising Rates.—See page XIV.

Mr. C. A. Green is our accredited representative for New York.

Mr. A. R. Brown, Jr., is our accredited representative for Boston and the Eastern States. Office, 23 Doane street, Boston.

Mr. J. Viennot, 504 Walnut street, Philadelphia, is our accredited representative for Pennsylvania, Maryland, and Delaware.

Mr. O. D. Cotton, Columbus, O., is our accredited representative for Ohio, Illinois, Iowa, Michigan, and Indiana.

Mr. O. J. Frost, care Boston & Colorado Smelting Company, Argo, Colo., is our accredited representative for Denver and vicinity.

REMITTANCES should always be made by Bank Drafts, Post-Office Orders, or Express Money Orders on New York, payable to THE SCIENTIFIC PUBLISHING COMPANY.

THE SCIENTIFIC PUBLISHING CO., Publishers.

R. P. ROTHWELL, Pres. HENRY M. GEER, Sec. and General Manager,

P.O. Box 1833. 27 Park Place, New York.

CONTENTS.

EDITORIALS: PAGE.
The Condensation of Steam in the Pipes of the New York Steam Company ... 289
The Cost of Ash in Fuel ... 289
Papers Read before the British Iron and Steel Institute ... 289
The Closing of the Comstock Mines ... 289
Some More London Mining Bubbles ... 290

CORRESPONDENCE:
The Sudbury, Ontario, "Mountain of Copper" ... 290
The Nevada Consols, Limited—A Warning to English Investors ... 290
Comparative Efficiency of Spray and Surface-Cooled Air-Compressors ... 290
Air and Water-Jigs ... 291

The Manufacture and Cost of Coke ... 291
The Rice Automatic Engine ... 292
Mineral Products of the United States in 1885 ... 292
Burnett's Roller Mining Wedge ... 294
Comparison of Two Systems of Rock Drilling ... 294

Coal Dust in Colliery Explosions ... 295
Books Received ... 296
Patents ... 296
Personals ... 297
Furnace, Mill, and Factory ... 297
Labor and Wages ... 297

NOTES:
Borneo (Sarawak) Antimony and Quicksilver ... 291
Prices of Locomotives in Germany ... 293
Mount Lyell (Tasmania) Gold Discovery ... 294
Tunnel between Denmark and Sweden ... 295
Free Import of Machinery into South Africa ... 295
The Rapid Absorption of Heat in Iron at a Certain Temperature ... 295
Coal Tar Quinine ... 295
Large Ancient Japanese Castings ... 295
The Energy of Dynamite ... 295
Accident in a Bridge Caisson ... 295
Petroleum V. Nasby on Socialism ... 296

COAL TRADE NOTES: PAGE.
Canada ... 297
Illinois ... 298
Pennsylvania ... 298
Tennessee ... 298
West Virginia ... 298
Wisconsin ... 298

GAS AND OIL NOTES:
Pennsylvania ... 298

MINING NEWS:
Alabama ... 298

MINING NEWS: PAGE.
Arizona ... 298
Australia ... 298
California ... 298
Colorado ... 298
Dakota ... 299
Georgia ... 299
Idaho ... 299
Michigan ... 299
Minnesota ... 299
Montana ... 299
Nevada ... 299
New Mexico ... 300
North Carolina ... 300
Ohio ... 300
South Carolina ... 300
Tennessee ... 300
Utah ... 300
Virginia ... 300

MINING NEWS: PAGE.
Wisconsin ... 300

MARKETS:
Metals ... 300
New York ... 300

Iron ... 301
New York ... 301
Philadelphia ... 301
Pittsburg ... 301
Louisville ... 302

Coal ... 302
New York ... 302

Advertisers' Index ... XV

MARKETS: PAGE.
Buffalo ... 302
Boston ... 303
Pittsburg ... 303

Petroleum ... 306

FREIGHTS ... 306

FINANCIAL:
Stocks ... 303
New York, 303, 5
San Fr'cisco 305
Philadelphia 306
Boston, 303, 305
St. Louis ... 306
Assessments 303

THE condensation of steam in the pipes of the New York Steam Company is only about 10 per cent, while the loss in pressure in five eighths of a mile of pipes, maintained at 75 to 80 pounds, is only about 2 to 2¼ pounds. The company sells steam by the "kal," a "kal" being one pound of water evaporated under a pressure of 70 pounds, from a temperature of 100 degrees Fahr.

THE cost of ash in fuel is a subject of great importance, and yet one that receives far too little attention from metallurgists. On another page, Mr. F. KOERNER discusses this subject as regards coke, the chief metallurgical fuel, and he gives some very suggestive figures.

The coking ovens that Mr. KOERNER designs and advocates embody the principles that have been so eminently successful in Krupp's great German works, and they are consequently worthy of the attention o our coke makers and furnace managers.

The subject of the actual cost of the avoidable ash in fuel will, we trust, draw out the opinions and experience of many of our engineers. All have much to gain by this discussion, and few of our iron-masters appear to appreciate fully how much they have to gain by thus reducing the quantity of ash and lessening the waste of carbon.

PAPERS READ BEFORE THE BRITISH IRON AND STEEL INSTITUTE.

Among the papers read at the recent meeting of the British Iron and Steel Institute was the Presidential Address by Dr. PERCY, in which this distinguished metallurgist referred to many recent improvements in iron metallurgy, such as the properties given to steel by small quantities of chromium; the use of aluminium in making mitis wrought-iron castings, already fully described in the ENGINEERING AND MINING JOURNAL. Dr. PERCY also emphasized the figures that show how rapidly we in this country are overtaking England in the production of iron and steel, figures that leave no doubt as to the position of this country a few years hence.

Sir FREDERICK ABEL and Colonel MAITLAND read a paper on "The Erosion of Gun-Barrels by Powder Products," and gave the results of experiments made with the view of ascertaining the quality of metal best calculated to resist erosion. This paper furnishes much valuable information for those interested in the manufacture of ordnance. Mr. PERCY C. GILCHRIST and EDWARD RILEY, as a committee of the Institute, read a very interesting paper on "The Iron-Making Resources of the British Colonies." The data given in this report were mostly collected at the Colonies Exhibition in London, and are therefore somewhat apt to be optimistic in character. Sir HENRY BESSEMER described "Some Early Forms of Bessemer Converters" that could be studied with advantage by those who propose making improvements in Bessemer plant. Mr. JOHN HARDISTY read a paper on "Modifications of Bessemer Converters for Small Charges," special reference being made to the Clapp-Griffiths converter. Hatton's, Wittnofftt's, and Davy's portable converters. FREDERICK SIEMENS, C.E., read a paper on "Combustion with Special Reference to Practical Requirements." "Experiments on the Removal of Metalloids in the Basic Siemens Furnace" was the title of a paper read by Mr. F. W. HARBORD. M. FERD. GAUTIER read a paper on "Casting of Chains in Solid Steel," and one on "Silicon in Foundry Iron" and the use of ferro-silicon; and Mr. C. PURDON CLARKE described the "Process Employed in Casting Brass Chains in Jeypore, India." Mr. F. W. GORDON described "American Blast-Furnace Practice," from examples most of which have already been given in the ENGINEERING AND MINING JOURNAL. "Chrome Pig-Iron and Steel" was the subject of a paper by M. BRUSTLEIN.

Several of these papers are so important that we shall refer to them again, and, where our readers desire it, will publish them in full.

THE CLOSING OF THE COMSTOCK MINES.

No more important announcement has come to us recently than that which says it has been decided to abandon the lower workings of some of the great Comstock mines and allow them to fill with water. The report says:

"Orders have been received from San Francisco to stop all work in the Chollar mine, and to immediately strip all levels below 2400 feet. The orders also necessitate the immediate suspension of all operations in the lower levels of the Hale & Norcross mine. This action is the result of the flat refusal on the part of the trustees of the Savage mine to pay their one-third proportion for keeping the pumps in motion at the combination shaft. The lower levels in both mines will be abandoned and flooded as soon as the ponderous pumps are shut down. The stoppage of work in these mines throws several hundred men out of employment and, it is believed, sounds the death-knell of deep mining on the Comstock."

It is well known that for some years past the expenses of the Comstock mines have exceeded their production, and that the stockholders have been losing money, whatever the managers of the mines, who are also the owners of the mills, may have done.

Great and expensive efforts have been made to find a new bonanza, but apparently without result; we say apparently, for nothing is ever known with certainty concerning what has been found in a Comstock mine, until it suits the management to make it public.

The great depth attained by the mines, and the high temperature encountered, make the work of exploration and mining very expensive, so that it requires what in other districts would be considered a "bonanza" to pay expenses.

It is true that immense economies have been effected through the pressure of poverty, and that mining and milling, though still expensive, are much less so than they were formerly, and less than in some other districts where the difficulties are much less. If an old-fashioned bonanza were discovered in the Comstock, and

could be worked as economically as the mines now are, which, of course, could not be expected, it would return a very much larger proportion of its output in dividends than did the former bonanzas. Unfortunately, there appears to be little prospect of any new pockets being discovered, and if the mines are to be allowed to fill with water up to the Sutro tunnel level, then, indeed, must the last hope be abandoned; for the work will now be confined simply to extracting such portions of the large bodies of low-grade ore as are in the upper levels and will pay to work. The final abandonment of the great lode would then be but a question of a few years. As a local paper says, "The abandonment of deep mining destroys the last glimmer of hope of future 'deals' in Comstock mining shares." The continued failure to open or make known a bonanza has apparently satisfied every one that the abandonment of the lower levels is done in good faith, and not with the view of "freezing out" any interest. The thousand rumors of "strikes" in the deep mines that we have so often heard of, and advised our readers to disbelieve, were simply started by insiders with the hope of being able to get rid of their shares.

That the great Comstock will be altogether abandoned for many years to come is not at all probable. Its fabulous bonanzas and profits in the past will cast shadows into the future, and we may expect some day, when a mining "boom" is raging, to find willing believers in a great hidden bonanza at the bottom of these mines, which may again be pumped out and explored.

SOME MORE LONDON MINING BUBBLES.

One swallow, they say, does not make a summer; but one mine can make a boom that will float a hundred wild-cats.

The Drum Lummon mine of the Montana Company, Limited, is a wonderfully rich property, and its enormous dividends appear to have so excited the average English investor that the industrious London promoter is hastening to make hay while the sun shines.

On another page, will be found a letter from Mr. Ottokar Hofmann, exposing one scheme in which his name has been improperly used. We presume this letter will prevent the accomplishment of further success by the parties to this vastly overvalued property.

Another and a worse case is the *Anglo-Montana*, a company organized in London, with a capital of £120,000, to purchase for about $400,000 the following claims, situated "within 2½ miles" of Marysville, Montana: The "Dr. Parker;" the "Griff;" the "Elgie;" the "Wormer;" two mill-sites and a five-stamp mill.

The reports quoted, and "to which the directors attach great weight," are by a "Mr. B. F. Marsh, U. S. Deputy Mineral Surveyor for the Montana District," and "Mr. Thomas D. Sankey, C.E., of London, and for the last three years employed on the Drum Lummon Mine;" he forgets to say "as a junior bookkeeper," and that his acquaintances in this country have never heard that he knows any thing about a mine or about engineering. A responsible correspondent writes us as follows:

"This Anglo-Montana Company has placed its stock on the London market upon the reputation of the Drum Lummon, which is owned by the Montana Company, Limited, but it is fully five miles away. I know the property supposed to be described in the report of Mr. Thomas D. Sankey, C.E., who, by the way, was clerk in the Montana Company's office at Marysville, Montana. This gentleman has surely never seen the bottom of the shafts on any of the mines that he speaks of. To speak plainly, the whole thing is a swindle of the worst type. The Parker and Griff mines have a ledge from 3 inches to 6 inches wide, which in some places carries ore valued at $10 or $12 a ton, but in most places is worthless. They have not got 50 tons of ore in sight. The whole property described, if put up at auction, would not sell for $10,000; and this includes a five-stamp mill, which never could be kept supplied with ore, or run at a profit."

Mr. "Sankey, C.E.," estimates the "ore in sight in two of the claims," proved by a few shallow shafts on the outcrop, as 180,000 tons of $27 ore, and a net profit of £40,000 a year, "subject to increase." Of course, he "finds every indication, as usual in such fissure-veins, that as the workings increase in depth the lode will considerably increase, both in thickness and richness." The "gentlemen" who are representing this precious humbug in London are:

Directors.—Charles Ronaldson, Esq. (Messrs. Ronaldson & Sons, merchants), No. 27 Mincing Lane, E. C.; J. Veasey Franklin, Esq., Fair Lawn, Eastbourne; Frederick Lindsay, Esq., C.E. (Messrs. Lindsay & Co., Engineers), No. 30 Great St. Helen's, E.C.; Henry Roberts, Esq., merchant, Dunster House, Mincing Lane, E. C.; G. Vesey Stewart, Esq., J.P., Merchant, No. 34 Leadenhall street, E.C.

Bankers.—Messrs. Prescott, Cane, Buxton, Loder & Co., No. 62 Threadneedle street, E. C.

Solicitors.—Messrs. Langton & Son, No. 37 Queen Victoria street, E. C.; and Thomas Gee, Esq., No. 20 North John street, Liverpool.

Brokers.—Frank S. Barnard, Esq., Crown Court, Old Broad street, London; and William Croft, Esq., No. 5 Castle street, Liverpool; and Messrs. Ferguson & Finlay, No. 63 St. Vincent street, Glasgow.

Secretary—J. H. Thornton, Esq., No. 44 Finsbury Pavement, E. C.

Will the *Financial News* and London *Economist* and London *Mining Journal* please take note?

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

The Sudbury, Ontario, "Mountain of Copper."

Editor Engineering and Mining Journal:

Sir: In your issue of October 16th, I notice a communication from Mr. Alderson regarding the Sudbury "Mountain of Copper," and I should think, from the terms of his letter, that he has confounded the location at present worked by the Ohio company referred to with another, not worked, and (two months ago) still in the hands of the original proprietors, Messrs. Abbott & Murray. This property consists of a bank of highly ferruginous earth and gravel, in which are found boulders of basaltic rock shot through with pyrrhotite and a very small percentage of chalcopyrite. The "pure oxide" referred to by Mr. Alderson, and which, from the context, would appear to be oxide of copper, is merely oxide of iron. Copper tests on large samples have invariably given such low results as to give no value to this property (in its present shape) as a copper mine. The track of the Canadian Pacific Railroad runs through it, and the only work done and observable to-day is the excavation made by the railroad, which on the south has cut the bank to a depth of about eight feet, and on the north, where a few feet farther it disappears in a swamp, to a depth of perhaps two or three feet. The usual surface products of decomposition that accompany pyrrhotite deposits are found here, but I saw no oxide of copper in quantities.

The properties owned by the Ohio company are two miles away from this, to the north and south of the main line of the Canadian Pacific Railroad, the southern locations only being worked at present, in open cut. Two months ago, the 200-foot shaft referred to had not been begun, and if this depth had actually been reached, the work must have been remarkable, as the rock is hard and tough.

These data refer to the situation of the properties two months ago, since which time, however, much may have changed. Yours truly,

Glenwood, Mass. John Heard, Jr.

The Nevada Consols, Limited—A Warning to English Investors.

Editor Engineering and Mining Journal:

Sir: By an advertisement in a London paper of July 3d, which to my regret did not come into my hands until now, I see that a group of mines of Monitor, Alpine County, California, under the name of the Nevada Consols, Limited, is brought in the London market for the enormous sum of £400,000, and that my report on one of the mines, which I wrote five years ago, is used to induce the sale of shares. As this price is a gross exaggeration of the actual value, I find myself obliged to request of you the kindness to publish these lines, in order to protect my name from being used in connection with unscrupulous and wild speculations, and to protect the mining industry as such from discredit, which it undoubtedly will have to suffer if this scheme is carried out.

My report is confined to the Colorado No. 2 mine, the only one in the group having a record of production, which, however, is far below what is stated in the prospectus, while the value of the others has yet to be found out. The Colorado No. 2 will pay fair interest to a smaller mining enterprise, say to an investment of from $150,000 to $200,000, if well conducted, and my report is based on such supposition. If I therefore say that this mining property has rare advantages for working ore cheaply, and that, by developing the mine more, it will pay very handsome dividends, notwithstanding the average of the ore being low grade, I, as a matter of course, was reflecting on a capital investment in conformity with the actual value of the property. Under such conditions, my report stands good; but as this same property is represented in London to be capable of paying 25 per cent per annum on a capital of $2,000,000, which is, to say the least, a gross misrepresentation of facts, I am obliged *to declare publicly my report as void, in connection with any such untrue statements, and to call the attention of the English public to this fact.*

The sufficiency of ore in the mine, of which I speak in my report, is meant for the supply of the twenty-stamp mill that is there, and not for an unlimited increased crushing capacity, as proposed in the prospectus.

I remain very truly yours,

San Francisco, Oct. 6, 1886. Ottokar Hofmann, Mining Engineer and Metallurgist.

Comparative Efficiency of Spray and Surface-Cooled Air-Compressors.

Editor Engineering and Mining Journal:

Sir: In your issue of the 2d inst., appears a severe criticism from the pen of Mr. William L. Saunders upon a test made by the writer and published in your issue of September 25th. The test was made for the purpose of ascertaining, if possible, the saving that could be effected by using spray injection upon the compressors that are under my charge. Had the result shown a saving of 20 or 21 per cent by spray injection, I doubt whether it would have been more pleasing to Mr. Saunders and other adherents of that system than to the experimenter. Mr. Saunders says: "Under such conditions, it is unfair to infer that this experimental set of jets was as efficient in its work as the regular spray-pumps and attachments employed by manufacturers of the jet system."

In answer to the above, I would say that the spray-pumps and attachments were made by the Ingersoll Rock Drill Company for the compressor upon which they were used, and for the express purpose of showing the advantage of spray over surface cooling.

If surface cooling is wrong, then my failure to prove it must be attached to the pumps, and from them to the makers. Mr. Saunders quotes from Messrs. Rand's catalogue in defense of his theory. Must we accept Messrs. Rand as authority? Probably Mr. Rand had placed his hand upon the discharge-pipe of an Ingersoll compressor at the New Aqueduct, which Mr. Saunders considers proof that the position he takes is unassailable. Naturally we infer from a cold discharge a low temperature in the cylinder and isothermal compression. Doubtless it would be a revelation to Messrs. Saunders and Rand should it be shown that, while the discharge-pipe of an Ingersoll compressor was comparatively cold,

the temperature of the air *in* the cylinder at the point of discharge may range from 212 to 380 degrees Fahr.

Mr. Saunders will confer a favor on your readers and on me in particular by stating when pneumatic engineers agreed upon the efficiency of spray injection, how much water and how injected, and whether they decided in favor of spray injection after exhaustive investigation and experiments, or reached their conclusions by simply laying their hands on discharge-pipes. While not having the honor of an acquaintance with Mr. Saunders, I take it for granted that he is an authority on such questions as the one before us. In justice to your readers, I would say that the writer knows nothing of pneumatic or hydraulic engineering—is simply a machinist raised to a master mechanic.

ISHPEMING, MICH., Oct. 18. Respectfully, D. GILCHRIST.

Air and Water-Jigs.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Mr. C. H. Aaron, in your issue of the 2d, says: In the air-jigs, it seems that only one principle can be, or at least has been, applied, namely, the difference of falling rate through a resisting medium caused by difference of specific gravity.

Mr. Aaron is mistaken. The air-jig does not separate minerals on the principle of the difference of falling rate through a resisting medium. Free fall plays no part.

Separation of the minerals is effected by a difference of specific gravity and energetic force. Councillor Althans, of the Royal Court, Breslau, and one of the Centennial Judges, has correctly expressed it in the following language:

"The dynamic effect of the living force produced by an upward jerk has a more energetic effect than free fall.

"In the employment of air in puffs as a medium, its inferior density is a decided advantage. With water, the vis inertia of the mass of the medium to be moved prevents driving a jigger at more than from 60 to 100 strokes per minute. Troublesome setting back of the water takes place, which acts detrimentally to the separation of the sieve.

"On the contrary, the air escapes at each stroke without setting back, and it is, therefore, possible to drive the pneumatic jigger from 420 to 500 strokes per minute."

Mr. Aaron says: "I am not one of those who think, either on practical or theoretical grounds, that air is superior or equal to water as a medium for the concentration of ores in general. Let us investigate the theoretical side of this subject. For this, suppose we set up two jigs, one a water-jig, and the other an air-jig. We adjust the water-jig to produce intermittent impulses, just sufficiently strong to cause the desired separation of the ores on the sieve. In like manner, we adjust the air-jig, to give intermittent impulses of air sufficiently strong to separate the minerals on the sieve.

"It must be manifest that both operations are precisely alike, practically and theoretically, that both accomplish similar results, both use a fluid medium. Certainly any one understanding the subject would not object to air on theoretical grounds. Theoretically, the principle and operations in each are identical. But air is the ideal medium, and no amount of disbelief alters the fact. Now, as to the practical side of the subject, the objections are equally without foundation. Air is always at hand free of expense, and as there is no adhesive effect between dry sand particles, as in wet concentration, the pneumatic jigger can be driven to give from 480 to 500 impulses per minute, consequently do more work, and much finer sands can be separated on the pneumatic jig than on the hydraulic.

"Dry sands form a loose mass easily penetrated by the compressed air, while on the hydraulic jig it is raised altogether in a closely adhering mass by the water thrusts, and in falling hinders its own separation through mutual adhesion." Mr. Aaron also states that closer sizing of the ore is required for dry concentration. In this he is also mistaken. It is just the reverse. Yours truly, S. R. KROM.

THE MANUFACTURE AND COST OF COKE.

Written for the Engineering and Mining Journal by F. Koerner, M.E.

All those interested in coal mining and the manufacture of iron are aware of the growing importance of coke as a fuel; comparatively few persons have been so situated as to undertake the inquiry, whether the process now in almost universal use in this country is good, bad, or indifferent; still fewer, perhaps, after ascertaining the enormous waste in our present way of producing this important fuel, are able to suggest a remedy. To do something in this direction, is the object of this paper. Of course, in the space that can be accorded to it in the JOURNAL, we can scarcely do more than glance at the most important points.

How is coke produced at present?

We mine the coal, leaving from 30 to 40 per cent of the seam in the mine as pillars and waste, when in most places the removal of very nearly all the coal would materially cheapen the cost per ton—not to speak of other incidental advantages of a more rational mode of mining, such as better ventilation, shorter tramways, and a better chance to apply coal-mining machinery.

The coal so mined is dumped into coke-ovens that are bad, cheap copies of the ovens in use in Europe thirty or forty years ago. The coal is "burnt" to coke, and the gases escape into the air unused: from the construction of the oven, it is impossible to utilize them for any purpose; during the "burning," 15 per cent, sometimes even more, of the fixed carbon of the coal is consumed. When we examine a plant of 100 ovens, and find them stretched 1400 feet long; when we see the imperfect and, in a great many cases, the slovenly means used to close the apertures of the ovens to prevent the access of air to the red-hot coke after the gases have been expelled, we wonder that the loss of fixed carbon is not greater. The great length of the plant makes efficient supervision almost an impossibility. When the coke is finally done, a stream of cold water is turned into the oven to cool the coke; the heat of the oven accumulated during the burning of the charge, instead of being utilized for the next charge, escapes with the steam into the air. That the sudden contraction of the masonry consequent on the injection of the water, repeated every 48 or 72 hours, makes frequent repairs necessary, and causes loss of time, goes without saying. The coke is then drawn out *by hand*. If cars for transportation are at hand, it is *wheeled by wheelbarrows* into them; if not, it is *wheeled* to the edge of the cooling-floor and piled up *by hand*. When cars come, it is *handled* again.

The writer procured, a few years ago, 29 specimens of coke from different works, all of good repute in the market. The average of the ashes from these specimens was 12·75 per cent. If we assume that 4 per cent is a fair average of ash due to impurities forming an integral part of the coal used in coking, then the remainder of the ashes found in coke forms another count in the indictment of the present process.

Let us examine this unnecessary amount of ashes closer, and see where it will land us.

In the Connellsville region, 1·6 tons of coal give a ton of coke, or so it is claimed. Then the unavoidable 4 per cent of ash of the coal should give 6·4 per cent of ashes in the coke: instead of that, we find 12 per cent and over.

Now, this difference in the amount of ashes between what is and what should and could be being 6 per cent, means first a proportionately greater number of ovens to produce the same quantity of actual fuel; it means an increased cost of the fuel in handling it; if the coke is freighted to a near or distant market, it means increased freight; if the coke is used for ore smelting, it means increased flux, increased slag, increased labor, lessened capacity of the furnace!

We will try to give the value of this difference in dollars and cents:

In a plant of 100 ovens, there will be 6 more ovens necessary to produce the same amount of actual fuel. They cost at $250 = $1500. Interest—not to mention repairs—at 6 per cent	$90
The product of 100 ovens being annually 40,000 tons, and the cost of labor per ton 40 cents, gives total labor = $16,000. Six per cent of this additional for unnecessary ashes =	960
Freighting the product, 40,000 tons, to a distance, at $2 a ton = $80,000; 6 per cent for unnecessary ashes =	4800
	$5850

These ashes mean, therefore, fifty-eight hundred and fifty dollars on the product of 100 ovens, or 14·62 cents per ton, to the consumer.

Data are lacking for estimating the increased cost per ton of iron with such coke; but what with extra flux, extra slag, increased labor, and lessened furnace capacity, it can not be less than 30 cents a ton.

So far the ashes.

When we compare our present coking process with what it ought to be, and can so easily be made to be by avoiding unnecessary loss of fixed carbon, utilizing the gases, and applying simple labor-saving machinery, we find the case still worse.

During a journey undertaken by the writer a few years ago, to gain information on the coke question, he found at the mines of a celebrated steel-works on the continent of Europe, a plant of coke-ovens that had then been in use three years. The coal was carefully washed and the ashes in the coke were only 4½ per cent. The loss of fixed carbon of the coal in coking was only ¾ per cent in ordinary working, against our loss of 15 per cent in the bee-hive oven.

We have seen that the avoidable 6 per cent of ashes in the coke add to the cost of it to the consumer at the distance 14·62 cents. How much will the difference in the loss of fixed carbon add?

The avoidable loss of carbon being 14 per cent, and the present price of coke at the ovens $1.60, the loss amounts to 22·4 cents a ton.

The force employed at a plant of 100 bee-hive ovens producing 140 tons daily is 26 men; their wages are $51. By using a different oven, applying simple machinery, using appliances for handling the coke, which have giving such splendid results at our anthracite mines, *at least* one half of this labor can be saved, or 18 cents a ton.

Recapitulation:

	Cents.
Loss due to ashes	14·62
Loss due to waste of carbon	22·40
Loss due to waste of labor	18·00
	55·02

Fifty-five cents a ton on the product of 100 ovens = $22,000 loss.

Loss on a ton of iron using 1¼ tons of coke per ton of iron:

	Cents.
Loss by ashes, carbon, labor	68·75
Loss by increased flux, etc	30·00
	98·75

On a furnace product of 40,000 tons the loss is $39,500!

Is it not about time to call a halt and see whether we can not do better?

Borneo (Sarawak) Antimony and Quicksilver.—The quantity of antimony exported shows a further falling off when compared with previous years. The deposits of high-class ores, suitable for shipment to the home market in Upper Sarawak (to which district mining operations are principally confined) appear to be well-nigh worked out, while prospecting in other districts has given no beneficial result. Efforts have been made, and are still carried on, to open up a deposit in Rejang; but, so far, very little high-class ore has been obtained. The reduction of low-class ores too poor for shipment has been tried by the company, which leases the right to work minerals from the Sarawak government, and has met with marked success. The regulus produced compares favorably, as regards the percentage of antimony it contains, with perhaps the best known brand in the London market, while the process of "starring" the metal, in order to satisfy the fancy of consumers, is effected successfully. Though consumers appear to imagine that "starred" metal (the effect of which gives the surface of the slabs a fern-like appearance) denotes purity, the reverse is in reality the case, as the presence of well-defined "star" actually denotes the existence of impurities in the metal. The production of quicksilver continues to be carried on; but very little good cinnabar is now obtainable, and the quality of the ore at present treated is extremely poor. Though a considerable reward is offered for the discovery of a workable deposit of cinnabar, no such fresh find has been met with.

THE RICE AUTOMATIC ENGINE.

We illustrate herewith this engine, which has been under practical working test some time, several of them having been built by the patentee, F. B. Rice. During this time, its performance has been so satisfactory that the John T. Noye Manufacturing Company, Buffalo, New York, has taken it up, and will push its manufacture. The builders claim it to be the first of what is destined to be a prominent and popular class or type of engine ; that is, the self-contained straight-shaft or side-crank class.

In designing this engine, it has, as will be seen, been divested of many parts that are often used.

The bed-plate or frame is a modified form of the Porter-Allen type. It has cylindrical slides, and is extended outward from the main journal to carry the outer bearing, both being embraced in one casting. As there are no eccentrics or other gear on the main shaft, there is no break or gap between the bearings, the shaft being entirely inclosed and hidden from view. The cap castings are prolonged for this purpose, as well as to shut out dust. The liners for the shaft bearings and for crank-pin boxes are cast in molds specially made. They are, of course, duplicates, and sure to fit. The top and bottom of both main and outer bearings being exactly alike, can be shifted until the entire set is worn out before renewing.

The automatic governor is quite simple in construction. Its position in the back of the crank-disk removes it from sight and danger from outside sources. It is connected with the eccentric by a closely fitted pin, passing through the main crank-pin center. The use of all locks, cams, and wedges is avoided, the chief design of the governor being to avoid friction. The duties of the governor are also materially lessened by the use of a practically balanced slide-valve. This valve can easily be moved under a full head of steam by one hand grasping the smooth valve-stem. The valve takes steam internally, and exhausts at the ends, thus leaving the valve-chest and stuffing-box free from pressure, except that of exhaust. This is a convenient arrangement in fitting the valve and for examination, as the engine or valve can be operated with the chest cover removed and the valve in full view. The valve is of the double-effect class, and judging by the diagram, is very effective. The diagram shown was taken February 11th from an engine in Buffalo. The spring used was forty, which is rather light for the revolutions—260 per minute. The engine is 8 inches by 16 inches. A Thompson indicator was used. Steam, 68 pounds; exhaust pressure in receiver, 1 pound, the exhaust being used to warm the building. Indicated horse-power, 39·34.

The advantages of the application of the automatic cut-off to small engines have been frequently denied; but it is claimed by the builders of this engine that as high as 50 per cent has been saved by it over throttling engines it has displaced, and that cards showing water consumption as low as 22 pounds per hour per horse-power have been taken from a 5 by 10 engine.

All parts of this engine can be oiled without stopping. The oil-cup shown on the post in front of the crank drops oil into the interior of the eccentric, which is flanged to retain it. From there, it is forced to the crank-pin by centrifugal force, a portion finding its way to the eccentric strap, and also oiling the governor rock-shaft in the crank-pin.

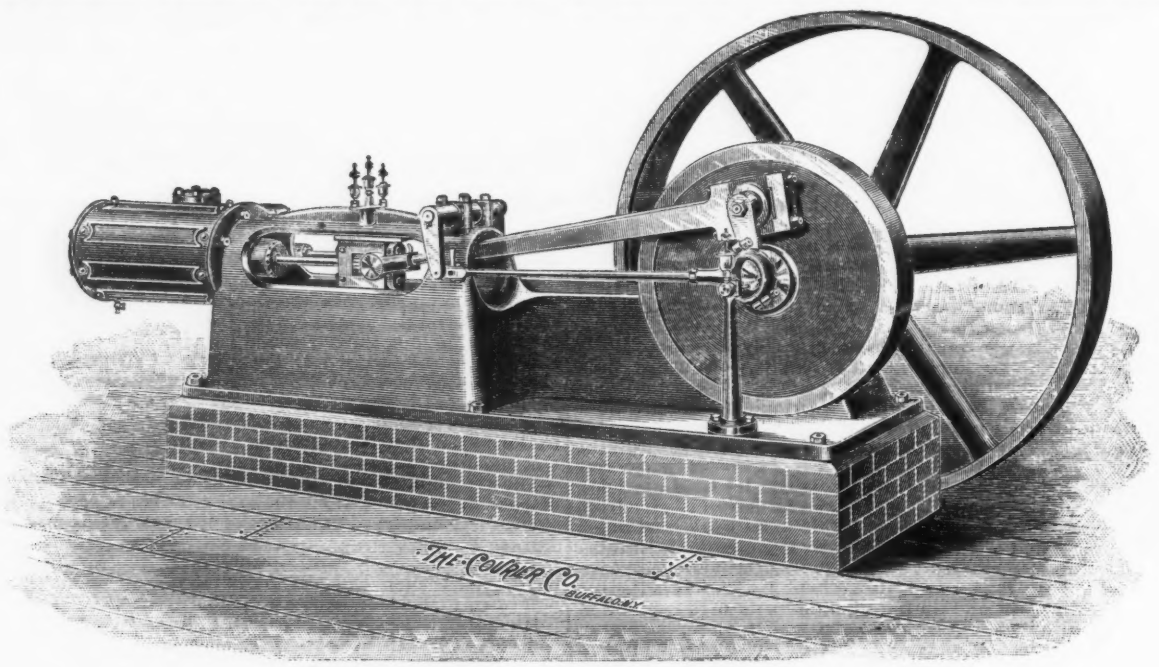
The rock-shaft for valve connection is neatly mounted over the slide, where it is perfectly accessible; in fact, the whole design of the engine leaves the working parts outside in plain view and convenient for adjusting and cleaning.

The reciprocating parts are of such weight that a pressure of 35 pounds per inch is required on the piston to stop and start them at regular speed of the engine. This, together with liberal wearing surfaces, ground steel bearings, and anti-friction liners, gives the engine smooth and cool running qualities. One filling of the crank-pin oiler is said to last a week with a 40 horse-power engine. The engine is carefully counterbalanced against shaking: one of them, we are told, was run for some weeks set on wooden horses 20 inches above the floor.

The bed-plate has ample strength entirely independent of foundation. It has a large rectangular base provided around its outer edge, with a rib that retains all drippings.

One of the most attractive exhibits at the Minneapolis Exhibition is a 40 horse-power engine, shown by the John T. Noye Company, and in charge of Mr. J. A. Hutchinson. It is driving the Edison light, and the electricians have placed six lamps inside the fly-wheel, making quite a curious and novel display.

The extraordinary claim is made for this engine that it will govern within one third of one per cent, with load varying from nothing to full rated power.



THE RICE AUTOMATIC ENGINE.

MINERAL PRODUCTS OF THE UNITED STATES IN 1885.

We are favored with advance proofs of a brief summary of this long expected and much delaved work. It is issued by Mr. David T. Day, the present Chief of Division of Mining Statistics and Technology, but in reality the work was done under the direction of Mr. Albert Williams, Jr., who recently accepted the position of Director of the Michigan Mining School. The brief abstract furnished is insufficient to indicate the scope of the report; but Mr. Williams's experience, ability, and past success are guarantees that his report will be a valuable addition to our technical literature.

Coal.—Referring to the annexed table, we find, first, that the production of coal, exclusive of that consumed at the mines, amounted in 1885 to 95,830,705 long tons, and the total production, 99,069,216 long tons. The production of anthracite (which, Governor Pattison says, was restricted by the combination of the coal companies in 1885) was 1,052,792 tons in excess of 1884, while the *unrestricted* production of bituminous coal in the entire country is stated to have been 8,889,871 tons *less* than in 1884.

We believe the production figures are more nearly correct than they were in this report a year ago, though the anthracite production is stated to be about 1,000,000 tons greater than the official figures of Mr. Jones, the companies' statistician.

We are inclined to attribute the decline in the figures of bituminous production rather to more accurate statistics than to actually lessened output. Indeed, we believe the production of 1885 was fully as great as that of 1884.

Coke.—The total production of coke in 1885 was 5,106,696 short tons, valued at the ovens at $7,629,118. Of this, Pennsylvania produced 78 per cent, or 3,991,805 tons, valued at $4,981,656. The remainder was produced by fourteen States and territories. The maximum production of coke in the United States was reached in 1883, when 5,464,721 tons were made. This declined in 1884 to 4,873,805 tons. The production of 1885 shows a gain upon that of 1884, being within 360,000 tons of the make in 1883.

Natural Gas.—No record is kept of the yield in cubic feet. The amount of coal displaced by gas in 1885 was 3,161,600 tons, valued at $4,854,200. In 1884, the coal displaced was valued at $1,460,000. The yield has increased tenfold since 1883.

We published, months ago, the production statistics of several of the articles, and need not repeat them. We simply annex the values at which they are estimated in this report: Petroleum, 87⅞ cents a barrel; copper, 10·7 cents a pound in New York; lead, $81 a ton at the Atlantic coast; white lead, 5¼ cents a pound; zinc, 4·35 cents a pound; quicksilver, $30.53 a flask at San Francisco; quicksilver, vermilion, 52 cents a pound.

The report says: "Probably 200 tons of 'black tin' ore were made at the concentrating-works at the Etta mine in Dakota." In reality, as stated months ago in this JOURNAL, the production of black tin at the Etta mill was about 7 tons, *not* 200.

Platinum.—The amount of crude platinum mined in 1885 was about 250 troy ounces, valued at $187.50. This is exclusive of about 300 ounces of iridosmine, for pointing pens.

Aluminium.—The production of metallic aluminium increased from 1800 troy ounces in 1884 to 3400 ounces in 1885, valued at $2550. Aluminium bronze, containing 10 per cent aluminium, was made to the amount of about 4500 pounds, valued at $1800.

Lime was valued at 50 cents a barrel.

Cement.—The production of cement from natural rock increased to 4,000,000 barrels of 300 pounds each, but was valued at only $3,200,000. Artificial Portland cement amounted to 150,000 barrels of 400 pounds each, with a total value of $292,500. The total production of cement of all kinds was 4,150,000 barrels, valued at $3,492,500, against $3,720,000 in 1884.

Precious Stones.—The value of American precious stones produced in 1885 was $69,900. This includes $42,800 for stones sold as specimens and souvenirs, and $27,100 for stones to be cut into gems. Besides this, gold quartz, with an estimated value of $140,000, was sold for specimens and for ornaments and jewelry.

Millstones.—The trade in millstones of all kinds has decreased markedly from the introduction of roller mills. The total value of the Esopus millstones in New York and Cocalico stone in Pennsylvania did not exceed $100,000 in 1885.

Phosphates.—With the exception of a local consumption of about 1000 tons in North Carolina, the total production of phosphate rock came from South Carolina, and amounted to 437,856 long tons of washed rock for the calendar year 1885, valued at $2,846,064, at an average value of $6.50 a ton.

Gypsum.—The estimated production of land plaster in 1885 was 100,600 short tons; of calcined plaster, 72,200 tons; total, 172,800 tons, valued at $959,600. The above includes 75.100 tons from native stone, the remainder being imported from Nova Scotia.

Salt.—The total production in barrels of 280 pounds was 7,038,653, exceeding the yield of 1884 by 523,716 barrels. The total value of all salt produced was $4,930,621, an increase of $732,887, which was due partly to the increased value of the Michigan product, and partly to the large increase in the production of Western New York.

Bromine.—The production increased slightly, being about 310,000 pounds, against 281,100 in 1884. The total value, at an average of 29 cents a pound, was $89,900, an increase of $22,436 above the previous year.

Borax.—Production, limited to California and Nevada, 8,000,000 pounds; value, at 6 cents a pound for concentrated, $480,000. While the product increased by 1,000,000, the fall in price lowered the total value by $10,000.

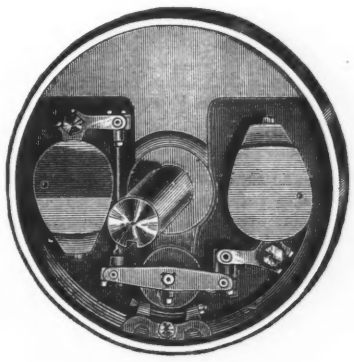
Sulphur.—The production was only about 700 tons, worth about $18.000.

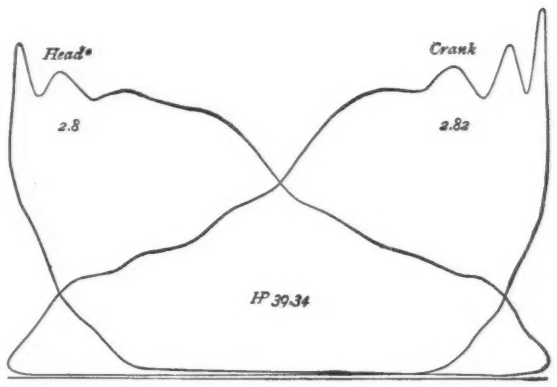
Pyrites.—About 49,000 long tons were mined, valued at $220,500. In addition, 47,500 tons were imported.

Barytes.—The production was about 15,000 tons, valued at $75,000, in the unground condition, as taken from the mines.

MINERAL PRODUCTS OF THE UNITED STATES.

Products.	1884. Quantity.	1884. Value.	1885. Quantity.	1885. Value.
METALLIC.				
Pig-iron, spot value ..... long tons..	4,097,868	$73,761,624	4,044,525	$64,712,400
Silver, coining value .....troy ounces..	37,744,605	48,800,000	39,910,279	51,000,000
Gold, coining value.....do....	1,489,949	30,800,000	1,538,376	31,801,000
Copper, value at New York City ...pounds..	147,805,407	18,106,162	170,962,607	18.292,999
Lead, value at New York City ..short tons..	139,897	10,537,042	129,412	10,469,431
Zinc, value at New York City.....do....	38,544	2,422,707	40,688	3,539,856
Quicksilver, value at San Francisco..flasks..	31,913	936,327	32,073	079,189
Nickel, value at Philadelphia.....pounds..	94,550	48,412	277,904	191,753
Antimony, value at San Francisco, short tons.....	.....	.....	.....	.....
Platinum, value (crude) at New York City, troy ounces.....	150	450	250	187
Aluminum, value at Philadelphia, troy ounces.....	1,800	1,350	3,400	2.550
Total value metallic products.....	.....	$186,414.074	.....	$181.589,365
NON-METALLIC (SPOT VALUES).				
Bituminous coal .....long tons..	73,730,539	77,417,066	64,840,668	82,347,648
Pennsylvania anthracite.....do....	33,175,756	66,351,512	34,228,548	76,671,948
Petroleum.....barrels..	24,089,758	20,476,294	21.842.041	19,193,694
Lime .....do....	37,000,000	18,500,000	40,000,000	20,000,000
Building stone.....	.....	19,000,000	.....	19,000,000
Salt.....barrels.	6,514,937	4,197,734	7,038,653	4,825,345
Cement.....do....	4,000,000	3,720,000	4,150,000	3.492,500
Limestone for iron flux.....long tons..	3,401,930	1,700,965	.....	1,694,656
South Carolina phosphate rock.....do....	431,779	2,374,784	437,856	2,846,064
New Jersey marls .....short tons..	875,000	437,500	875,000	437,500
Borax.....pounds..	7,000,000	490,000	8,000,000	480,000
Mica.....do....	147,410	368,525	92,000	161,000
Ocher .....long tons..	7,000	84,000	3,950	43.575
Soapstone.....	.....	.....	.....	.....
Crude barytes.....long tons..	25,000	100,000	15,000	75,000
Precious stones.....	.....	82,975	.....	69.900
Gold-quartz souvenirs, jewelry, etc	.....	110,000	.....	140,000
Pyrites .....long tons..	35,000	175,000	49,000	220,500
Manganese ore .....do....	10,000	120,000	23,258	190,281
Chrome iron ore.....do....	2,000	35,000	2,700	40,000
Asbestus.....short tons..	1,000	30,000	300	9,000
Graphite.....	.....	.....	.....	.....
Cobalt oxide.....pounds..	2,000	5,100	68,720	65,373
Slate ground as a pigment .....long tons..	2,000	20,000	1.075	24.687
Sulphur .....short tons..	500	12,000	715	17,875
Asphaltum.....do....	1,000	10,500	3,000	10,500
Corundum.....	.....	.....	.....	.....
Pumice-stone.....	.....	.....	.....	.....
Feldspar.....long tons..	10,900	55,112	13,600	68,000
Zinc-white .....short tons..	13,000	910,000	15,000	1,050,000
Bromine .....pounds..	281,100	67,464	310,000	89,900
Mineral waters ..... gallons sold..	10,215,328	1,459,143	9,148,401	1,312,845
Natural gas.....	.....	1,400,000	.....	4,854.200
Total value non-metallic mineral products.....	.....	$219,800,674	.....	$239,431,991
Total value metallic products.....	.....	186,414,074	.....	181,589,365
Estimated value of mineral products unspecified.....	.....	7,000,000	.....	7,600,000
Grand total.....	.....	$413,214,748	.....	$428,521,356





THE RICE AUTOMATIC ENGINE.

Mica.—The production decreased in the West, owing to the inferior value of the sheets obtained. The whole product, excluding waste, was 92,000 pounds, valued at $161,000.

Feldspar.—Production, 13,600 long tons, valued, before grinding, at $68,000.

Asbestos.—The amount mined was about 300 short tons, valued at $9000.

Asphaltum.—The production remained constant at about 3000 tons, with a spot value of $10,000.

Prices of Locomotives in Germany.—The tenders sent in for a recent Bromberg railroad contract for five two-axle locomotives with tenders were as follows: Actien-Gesellschaft Hohenzollern, Düsseldorf, 25,580 marks; L. Schwartzkopff, Berlin, 25,175 marks; Henschell & Son, Cassel, 22,750 marks; Union-Giesserei, Königsberg, 22,300 marks; Vulcan, Stettin, 22.000 marks; Actien-Gesellschaft, vormals Georg Egestorff, Linden, Hanover, 21,575 marks; F. Schichau, Elbing, 20,500 marks. So that not only are prices very low, but there is a difference between the highest and the lowest tender of no less than 5080 marks, or £254.

PARTICULARS OF PRELIMINARY TRIALS WITH BURNETT'S PATENT ROLLER MINING WEDGE, AT THE GREENFIELD AND WHITEHILL COLLIERIES, HAMILTON, N. B.; ARCHIBALD RUSSELL, PROPRIETOR; JAMES HASTIE, MANAGER.

1886.	Seam.	Pit.	Width of room.	Section of seam.	Depth of "holing."	Height of "holing" at front.	Width of shearing at front.	Number of holes 3 ft. 8 in. by 4½ in. in diameter.	Distance from fast side.	Round dross—total.			Percentage of round coal.	Time.	Remarks.
			ft. in	ft. in	ft. in	ft. in	ft. in		ft. in	tns. cwt	tns. cwt	tns. cwt			
June 16	1. Splint* (Virgin)	Greenf'ld No. 2.	11 6	3 8	4 0	1 6	1 11	1	2 0	4 5	1 5	5 0	77	Average time in drilling one hole 3 feet 8 inches × 4½ inches = 12 minutes. Average time in wedging down the juds = 13 minutes.	With one wedge placed in position, the whole of the coal to the full depth of the "holing" was brought down in splendid round condition.
" 17	2. " "	"	11 6	3 8	3 8	1 6	1 6	1	2 0	3 6	1 5	5 1	75¼		Ditto, ditto.
" 18	3. " "	"	13 6	3 8	3 8	1 6	1 6	1	2 0	5 5½	1 13	8 18	81		All brought down in large solid pieces.
" 18	4. " (Splint)..	"	9 0	1 11	..	..	..	1	c'nt'r	2 0					Splint detached for 9 feet; wedge-hole drilled in center at top.
" 19	5. " (Virgin)..	"	15 6	3 8	4 0	1 6	1 6	1	2 0	6 0	1 15	9 15	82		Coal all detached to full depth in large blocks.
" 19	6. " (Splint)..	"	9 0	1 11	..	.	..	1	c'nt'r	2 0					Splint detached for several feet; wedge-hole in center at the top.
" 22	7. " (Virgin)..	"	16 0	3 8	3 8	1 4	fast	2	2 3	6 12	1 12	8 4	80¼		The wedges rent the coal all along the face, had to be cut in a little on left-hand side to allow jud to fall.
" 25	8. Main coal ..	Whitehill	11 6	4 2	4 3	1 11	1 6	1	1 6	5 0	1 14	6 14	74½		In this place, the wedge brought the whole of the coal down, one piece being full section by 9 feet 6 inches long.
" 25	9. " ..	"	11 6	4 2	4 3	1 4	1 5	1	1 6	5 1	1 13	6 14	75		All the coal brought down in splendid order, one piece being 7 feet 6 inches long.
" 26	10. Ell (Stooping).	"	18 0	4 10½	4 0	1 9	..	1	3 6	9 14	1 18	11 12	83½		One wedge brought the whole of the coal down right across the whole place; wedge worked well in the fast side, coal in very good condition.
" 29	11. " " ..	"	18 0	4 10½	4 0	1 9	..	1	3 6	9 14	1 18	11 12	83½		One wedge brought the whole of the coal down right across the whole place; wedge worked well in the fast side, coal detached in excellent condition.

* The Splint and Virgin coals are one seam, and are worked in separate stages. The Virgin underlies the Splint, and is first detached.

BURNETT'S ROLLER MINING WEDGE.

The probability that the use of gunpowder will shortly be forbidden in English coal mines in which safety-lamps are necessary lends a special interest at the present time to other means for breaking down coal. According to *Engineering*, the latest apparatus put forward for this purpose is the roller wedge of Mr. C. Burnett, of Hartlepool. The distinguishing feature of this apparatus, as compared with others in the same class, is, that there is no sliding contact between the surfaces of the wedge and the parts against which they abut, the pressure being borne by live rollers. By this means, a part of the power hitherto wasted in friction, is rendered available for breaking down the coal. Referring to the illustrations, it will be seen that the wedge bar is formed in one with the screw by which it is operated, and at each side of it there are placed four rollers that are inclosed in the hollow (Fig. 4) of two channel section feathers. These feathers are turned to a parallel circular form on the outside, so that they will readily enter a 4-inch bored hole in the coal. The upper feather is made thinner than the lower, and both are tapered on the inside. When the wedge piece is withdrawn by the screw, the rollers move along the feathers at half the speed of the wedge, and in so doing they force the feathers apart, and put a great bursting pressure on the coal. The screw is drawn endwise to move the wedge by a nut, which is rotated by a lever applied to a square on its end. When the resistance becomes too great to be overcome in this way, the lever is removed from the nut and applied to a ratchet arrangement (Fig. 3) by which an increased purchase is obtained. A series of teeth is cut around the nut, and gear with a pawl on a swinging lever pivoted on the screw. The hand lever is applied to an arm mounted on a stud fixed in an extension of the spoke piece that connects the two feathers. The boss of this arm is squared to fit the eye of the lever, and its farther extremity carries a roller that bears against the sides of a slot formed to receive it. When the arm is vibrated by the hand lever, it carries the swinging lever with it; but the angular motion of this latter, owing to its greater radius, is less than that of the arm, and thus an effect is gained similar to that of a wheel and pinion.

Figs. 6 and 7 illustrate the method of using the wedge. A hole is bored into the coal just below its junction with the roof, while at the level of the floor the coal is cut away in the usual fashion. The face is nicked to define the line of fracture, and then the wedge is inserted in the hole and operated until the coal comes down. For carrying out the operations expeditiously, Mr. Burnett uses a specially constructed bogie carriage, provided with a revolving cradle at each end. On one cradle is placed the roller wedge; this is mounted on wheels or guides so that it can be easily run forward, and be retained after the coal has fallen. On the other cradle, the drilling-machine is fixed. The wedges are 4¼ inches in diameter for coal, and 3¾ inches in diameter for stone.

The trials of the wedge, detailed in the table, were made in the Low Main seam, at the Greenfield and Whitehall collieries, N. B.

At Messrs. Musgrave Brothers' Hauercroft Main Colliery, near Wakefield, trials have been made of this wedge in a 5-foot seam. Two wedges were placed in an 8½-yard bank, holed 4 feet deep, and both ends cut to the same depth. Both wedges were put in 6 feet from each end, and the coal was brought down in splendid condition in five minutes after the wedge began to work. On an other occasion, one wedge was tried in a 6-yard bank, holed 4 feet in and cut at one end. The wedge was put in about 2 feet from the fast side, and in twenty minutes brought down the coal.

Mount Lyell (Tasmania) Gold Discovery.—The recent development of the Mount Lyell gold discovery bids fair to eclipse any thing of the kind hitherto found in Tasmania, and even to rival the famed Mount Morgan, of Queensland, the value of which is counted in millions. Mount Lyell is about seventeen miles northeast of Macquarie Harbor, on the west coast of Tasmania. Further prospecting has revealed to some extent the extraordinary richness of the deposit. It would appear at first sight to be a dike formation; but its exploration so far indicates that it is of hydrothermal origin, like the celebrated Mount Morgan mine. Several assays have been made, giving magnificent results. Three are known that were respectively at the rate of 164 ounces, 187 ounces, and 348 ounces, to the ton.

COMPARISON OF TWO SYSTEMS OF ROCK DRILLING.

By Prof. J. E. Denton.

A trial recently occurred at one of the New Aqueduct tunnels, the results of which illustrate the advantage of using a small number of heavy machine drills with high air pressure in a heading instead of a greater number of light drills at less air pressure. The trial consisted of a test of the ability of two 3½ inch by 8 inch "Rattler" rock drills to "drill up" a heading in the same time that was required by four 3½ inch by 7 inch Ingersoll drills in accomplishing the same work.

The test arose from a friendly rivalry between shaft 16 and its neighbor, shaft 18. In the former, it has been customary, for a year past, to rely on two heavy "Rattler" machines to "drill up" the heading every shift, whatever the hardness of the rock encountered; while in the other shaft, it was believed that two drills could only succeed in drilling a heading regularly in a shift, when the rock drilled was unusually good drilling ground.

Shaft 18 recently encountered rock in which four 3½ inch by 7 inch Ingersoll Eclipse rock-drills have required from eleven to fourteen hours to drill the 18 holes (from six to seven feet deep), used in blasting the heading. Accordingly, shaft 16 was notified that a good opportunity offered itself to test its two drill systems upon rock that, beyond doubt, was of a difficult character for drilling, and shaft 16 was invited to bring its own crew of men and machines to shaft 18, and show what they could accomplish toward drilling the headings in the interval of time required for this purpose by the four Ingersoll drills in daily use at shaft 18.

Superintendent Pennel of shaft 16 accepted this invitation, and the test was carried out under his direction, runners John Murray and Hugh McDevilt operating the two "Rattler" machines, under foreman Charles Farrell, of shaft 16. The results were, that Murray finished his side of the heading, or nine holes, aggregating fifty-seven feet and two inches, in ten hours and twenty-five minutes; while McDevilt in the same interval finished six holes and about eighteen inches of his seventh hole. Work was then stopped, as enough had been accomplished to serve the purposes of the trial. No allowance was made for delays after the machines started. Superintendent Pennel concludes that the unusual delays represented about an hour and a half, as one of the machines was idle exactly an hour, from the breakage of a bit in the first hole drilled, and the unusually rapid wearing off of the diameters of the bits led the runners into frequent difficulty for the first few holes.

He thinks that, with the machines in good order and a steady pressure of eighty pounds per square inch, the heading could be blasted at least ten times out of twelve shifts. The machines used have been at work since November, 1885. The runners, Murray and McDevilt, had never worked machines outside of shaft 16. The rock was sufficiently hard to cause a shower of sparks under the starting bit, so abundant as to light up one side of the heading, when full pressure was applied to the machines. On the water-holes, all the long lengths of steel (1¼ inches octagon) were considerably bent by the blows of the machines. The rock was also very gritty, creating so great a friction in the dry holes that the last lengths of steel were heated to a blue color. About one and a half sets of steel were used for each hole.

The air pressure at the heading was as follows:

Time P.M.	Pounds on gauge.	Time P.M.	Pounds on gauge.	Time P.M.	Pounds on gauge.
9.15	70	1.00	75	7.00	75
9.30	60	2.00	75	7.40	80
10.00	65	3.00	80		
10.30	60	4.00	75		
11.00	75	5.00	75		
12.00	80	6.00	80		

Average 71 pounds.

The pressure in the compressor-house, which was about four thousand feet distant from the heading, averaged about twenty pounds higher than at the heading, or about ninety pounds by gauge. Air was supplied by an 18 by 30 Rand compressor, which averaged fifty revolutions per minute, with a slight escape of air from the safety-valve and a delivery of air to the blacksmith's fire.

Assuming that the four Ingersoll drills at shaft 18 do their work with the air-gauge in the compressor-house at sixty-five pounds, an 18 by 30

compressor can, at the lowest estimate, maintain the four machines at work, when working fifty revolutions per minute, which corresponds to seventy horse-power of steam consumption. The two "Rattler" machines, if supplied with eighty pounds of air at the heading, or one hundred pounds at the compressor, require forty-five revolutions of the latter to keep them at work, which corresponds to about eighty horse-power of steam consumption. The extra ten horse-power put into the two "Rattlers" would represent about 1200 pounds of coal per twenty-four hours, or about three dollars in money. The saving of two machine runners and their helpers per shift amounts to about seventeen dollars per twenty-four hours; not to mention the saving in expense of repairs, and reduction in waste of oil and leakage of air, by the use of two machines instead of four.

COAL-DUST IN COLLIERY EXPLOSIONS.

At the meeting of German mining engineers at Düsseldorf, on September 6th, says the *Colliery Guardian*, Herr Nasse, in an address to the members of the association on the influence of coal-dust in the atmosphere of colliery workings, described and explained very clearly the action of dust in bringing about an explosion. The results of the experiments at Neunkirchen are, he says, definite and consistent, and they have served to clear away much of the obscurity that formerly enveloped the subject. From these experiments, we have learned that the risk of explosion depends upon four circumstances or conditions, each of which affects the explosiveness of the air in a high degree. These are: (1) the quantity and degree of firmness of the dust, circumstances that depend upon the hardness and the structure of the coal; (2) its chemical constitution; (3) the quantity of carbureted hydrogen present; and (4) the degree of moisture in the dust. The last is a matter of great importance and demands careful attention. It is a variable condition in the same mine; for dust may be very dry in one part of the workings and saturated with moisture in another. Also, the moisture contained in the coal-seam may be much less in one mine or in one locality than in another; so that great variations in the dryness of the dust at the working faces may be observed. Generally, the seams that do not reach the surface are much drier than those that crop out. The former usually contain about 4 per cent of water; the latter, from 9 to 15 per cent. Herr Nasse believes watering to be desirable, and where shot-firing is carried on, necessary. But he admits that practical difficulties have hitherto stopped the way against a general adoption of this precautionary measure. He thinks that the subject should receive more attention from mining engineers.

Herr Nasse gave, in elucidation of his remarks, some interesting information concerning the disastrous explosion at Camphausen. The dust of that colliery is excessively dry, and it has been found to contain a little moisture in the return ways as at the working faces. Down to the time of the accident, no unusual issue of gas has been observed, and all the evidence subsequently obtained points to the absence of gas, or at most to its presence in a very small proportion. Yet in this case a great explosion occurred, and the flame of it extended over a distance of 1200 yards. This enormous extension of the flame is indicative of a dust explosion, and the residue of combustion points in the same direction. In those parts where the men were burned, every thing was found to be crusted over with a layer of fine coke; and in other places where the men were only suffocated by the after-damp, there was a covering of soot. The inference, therefore, is, that this was a coal-dust explosion, intensified at its point of origin by the presence of a small quantity of gas. Herr Nasse asserts that ignition was not caused by the firing of a shot, as was generally believed; but by the surreptitious opening of a safety-lamp.

Herr Hilt, who followed Herr Nasse, gave some important information on explosives suitable for blasting in fiery mines. After commenting on the false security into which the report of the French Commission had lulled miners in dusty collieries, he showed that the ordinary black gunpowder is dangerous under all conditions, and ought, therefore, to be prohibited altogether. The probibition should be extended to the common Guhr dynamite, which will ignite a mixture containing more than 3 per cent of gas. Gelatine dynamite is fairly safe up to 6 per cent, and quite safe below 3 per cent. Schultze powder offers no greater security than Guhr dynamite. Herr Hilt decides in favor of "carbonite" as the safest and also, in coal, the most effective explosive. The use of the shattering compounds occasions a large proportion of "small." But carbonite, while giving greater security than gelatine-dynamite, has the same rending action as black powder. As for the water-shield, Herr Hilt is of opinion that when used it should be only as an additional safeguard to the safest explosive.

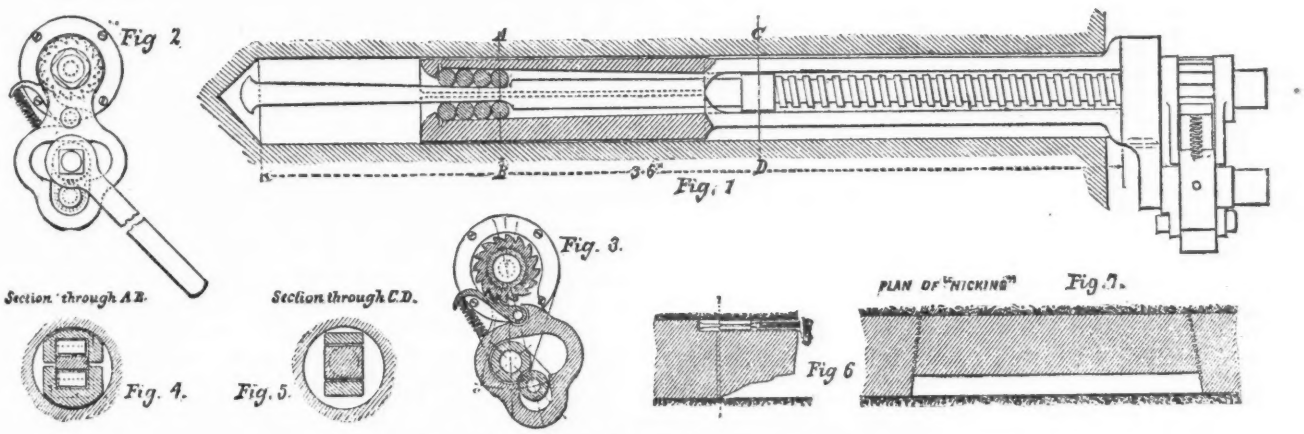
HYDRAULIC COAL-CUTTER.

Walcher's hydraulic apparatus for breaking down coal was exhibited at the Düsseldorf meeting, and very favorably commented on. It was said to be working very satisfactorily at the Dudweiler pit in that neighborhood. The experience gained in that and another colliery shows that the cost of getting coal with this apparatus is considerably higher than with powder; but the proportion of "round" is largely increased—in some cases, as much as 40 per cent.

Tunnel between Denmark and Sweden.—The proposed tunnel under the Sound will, a leading Swedish journal states, serve as a demonstration of the possibility of constructing the Channel Tunnel. It is further stated that great saving will be effected by having one line of rails only, and by making the tunnel of cast-iron.

Free Import of Machinery into South Africa.—The Cape government has decided to admit mining, railroad, and other machinery for all parts of South Africa free of duty through all ports of the colony, and also undertakes to forward the same at special rates by railroad to Kimberley, which is the nearest accessible point to all important places in the Transvaal and the interior.

The Rapid Absorption of Heat in Iron at a Certain Temperature.—According to experiments on iron by M. Pionchon, iron at about 700 degrees C. undergoes a modification characterized by an absorption of heat that is extremely rapid within an inconsiderable range of temperature. M. Becquerel states that at about 600 degrees the attractive action exerted upon iron by magnets is suddenly diminished. Nickel and cobalt, from a magnetic point of view, present effects of the same order, but at different temperatures—nickel at 400 degrees and cobalt at white redness.



BURNETT'S ROLLER MINING WEDGE.

Coal Tar Quinine.—Professor Fischer, of Munich, after an extended research on the nature and properties of quinine, has discovered that a substance may be extracted from coal-tar that exercises on the human organism an action identical with that of quinine. The substance appears as a white crystalline powder. Administered in cases of fever, it has the effect of rapidly lowering the temperature, and its efficacy in this respect is stated to be so remarkable as to permit the use of ice to be dispensed with; in the stomach, the wonderful powder assimilates with even greater facility than does quinine.

Large Ancient Japanese Castings.—Two of the largest castings in the world are to be seen at Nara and Kamakura, Japan, the one at the latter place being 47 feet high and the other, at Nara, 53¾ feet from the base to the crown of its head. The statue at Nara is supposed to have been erected in the eighth century, but it was destroyed and recast about 700 years since. In endeavoring to recast it, several mishaps occurred, and when at last success came, some few thousand tons of charcoal had been used. The casting, which is an alloy of iron, gold, tin, and copper, is estimated to weigh 450 tons.

The Energy of Dynamite.—Nitro-glycerine and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64.452 foot-tons; and one ton of blasting gelatine, similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary building stone, if arranged in the form of a cube, would measure only 90 feet on the side, and, if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such a mass, the only effect would be to lift it to the hight of a foot. The foregoing figures are derived from experiments made at Ardeer with an instrument that gives accurate results in measuring the force of explosives.

Accident in a Bridge Caisson.—A thrilling accident, imperiling the lives of fifteen men, occurred on the 21st inst., at the new Union Pacific bridge that is building over the Missouri River, at Omaha, Neb. At ten o'clock A.M., a leak was sprung in the caisson in the middle of the river, and before it could be calked it had filled the shaft up to the surface, thus cutting off the escape of the fifteen men who were at work on the bed-rock under the river. George A. Ledderlee, chief-engineer in

charge of the work, and his assistant, Ralph Modjeska, hastened to the caisson and at once proceeded to extricate the imperiled men. Mr. Ledderlee ran an engine, with pumps attached, to the pier, and set it to work pumping the water from the shaft. After working an hour, it was found that the engine was inadequate for the work of rescue, and a bucket brigade was then organized among the bridge employés, who with ropes and buckets slowly baled the water out of the shaft. This was slow and tedious work, and when the men had been imprisoned over three hours in the caisson, nearly every body despaired of ever seeing them again alive. Finally, at about three o'clock, the water was exhausted and the men were saved.

Petroleum V. Nasby on Socialism.—I hate a capitalist, no matter how he becum one. I hate the meenspirited grovelin retch wich will work ten or more hours a day, deprivin hissel uv beer, and terbacker, and cards, and bilyards, and hos racin, and sich, savin peny by peny til he hez ground enough out of the world to hev a shop uv his own, and to employ other men to slave fur him, and thus go on akumulatin till he owns things. Such men are monopolists, and the enemies of labor, and grinders. I hold that the possession of a ten-dolar bil makes a monopolist, and al sich shood be crushed. Ez hevin a ten-dolar bil makes a man a monopolist, his monopolism increases jist in proporshen to the ten-dolar bills he hes. The owner uv a factory is a enemy to the human race, and ez for the man wich bilds a ralerode, he

> Is a monster uv such hidgus meen,
> That to be hated needs but to be seen.

My hatred of raleroad managers is intens. It commenst with the fust time I wuz dropped off the hind platform uv a trane for not payin fare, and hez increst with every repetishun uv of the ofense, which generally happens every time I want to go anywhere. I lothe the ralerode monopolist. A grindin monopolist is any man wich has any thing. Whenever a man hez saved any thing, he becomes a capitalist, and ez capitalists are dangerous to labor, he should be made to divide it up, so ez to be on a ekality with them wich never saved nothing. The mechanic or workingman wich saves so ez to own a house or a farm becomes a capitalist, and consekently a grindin monopolist, and ez accumolashens are dangerous to labor, wat he hez shud be confiskated and divided up among us wich hezn't any thing. Property is a crime. I ain't jest shoor that I hev got the socialistic doctrine down fine enuff; but I think these definishuns will do, espeshly when yu howl em under a red flag to luvers uv humanity wich is chuck full of stale beer.

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and for that of book-buyers, give the retail price?]

Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures, and Condition of the Institution for the Year 1884. Part II. Washington: Government Printing-Office. 1885. 8vo, pages ix+458 (including Index), 105 Plates, and 105 pages descriptive matter.

Shoppell's Modern Houses. Vol. I., No. 4, October, 1886. Large 4to, pages 72. New York: The Co-Operative Building Plan Association. $1.

Frontispiece, a colored view of a modern cottage; views, floor plans, and full descriptions of 51 new designs for residences (cost ranging from $600 to $15,000); 2 new designs for stables and carriage-houses; and illustrated articles on over-mantels, house painting, landscape gardening, picture hanging and picture frames, and the removal of house-slops, privies, and earth-closets. Pages 277 to 288: The Habitations of Man in All Ages. By Viollet-le-Duc. Translated by Benjamin Bucknall, Architect.

Topographical Drawing and Sketching, including Applications of Photography. By Lieut. Henry A. Reed, U. S. Army, Assistant Professor of Drawing, U. S. Military Academy, West Point, N. Y. New York: John Wiley & Sons. 1886. Quarto, pages xiv+129 and 24 Plates, many of them folding. No Index; but a most copious ten-page Table of Contents. $3.50.

The writing of this excellent manual was first suggested by the fact that there was no native work that fully treated of and illustrated rapid methods of hill-shading; and it is now written not only to explain these and other methods now used either separately or in conjunction with them, but also to present the subject of topographical sketching in a form suited to a beginner.

Topographical Drawing. Introductory; instruments and materials; preparation of the paper, drawing-boards and practical rules and suggestions; scales and plotting. Part II. Plain Topographical Drawing. Conventional signs; representing the details; representing the configuration or surface-forms of ground. First method, by contours; second method, by contours combined with hill-shading. Hill-shading. Finishing the map, including lettering and ornamentation. Part III. Topographical Drawing in Colors. Materials, rules for working in colors, preparation and laying of tints; the conventional tints and their application. Part IV. Copying, Reduction, and Enlargement of Maps and Modeling. Part V. Projections for Maps of Large Areas.—Topographical Sketching. Part VI. Sketching Instruments, Methods, and Examples. Instruments, locating points, measurement of distances and hights, the skeleton; representing the configuration of the surface (or hill-sketching); sketching without instruments. Part VII. Photography applied to Topographical Sketching. Tables. Appendix (seven tables, including Measures of Different Countries in Meters and English Units, and for Mutual Conversion of Meters and English Units). An expert at our elbow says that this is one of the best works on the subject in the English or any other language.

Man and Labor: a Series of Short and Simple Studies. By Cyrus Elder. Chicago and New York: Belford, Clarke & Co. 1886. 12mo, pages 216.

On the Influence of Fluctuations of Atmospheric Pressure on the Evolution of Fire-Damp. Report of Experiments concerning this Question carried on in the Archduke Albert's Coal Mines, near Karwin, in Austrian Silesia. Published by H. I. and R. H. Archduke Albert's Director at Teschen, Austrian Silesia. Translated from the Second German edition by G. G. Bagster, Lecturer at the University of Vienna. Vienna and Teschen: Charles Prochaska. 1886. Quarto, paper cover, pages 18 and 6 very large folding Plates. $1.90. [B. Westermann & Co., New York.]

The Journal of the Iron and Steel Institute. No. 1, 1886. London and New York; E. & F. N. Spon. 8vo, pages xi+437 and 14 full-page Plates. (*No Index.*) $4.25.

Elements of Geodesy. By J. Howard Gore, B.S., Professor of Mathematics in Columbian University [etc.] New York: John Wiley & Sons. 1886. 8vo, pages iv+282 (including Index). $2.50.

Tall Chimney Construction. A Practical Treatise on the Construction of Tall Chimney Shafts, containing Details of upward of Eighty Existing Mill, Engine-House, Brick-Works, Cement-Works, and other Chimneys in England, America, and the Continent, constructed in Brick, Stone, Iron, and Concrete. By Robert M. Bancroft (Past President Civil and Mechanical Engineers' Society, London, England) and Francis J. Bancroft (Assistant Municipal Surveyor). Manchester: John Calvert. 1885. 8vo, pages 126 and 10 full-page Plates. (*No Index.*) [E. & F. N. Spon. $2.50.]

Manual of Assaying Gold, Silver, Copper, and Lead Ores. With one Colored Plate and ninety-four Illustrations on Wood. By Walter Lee Brown, B.Sc. Second Edition, thoroughly Revised and Augmented. Chicago: E. H. Sargent & Co. 1886. Square 12mo, pages 487 (including Index). It would give us great pleasure to state, for the benefit of our readers, the price of this work; but the publishers have not thought the matter of enough importance to indicate the price, either in the book, or on the book, or over the book. Perhaps it is underneath the book.

Supplement to the Steam-Engine Catechism: a Series of Direct Practical Answers to Direct Practical Questions. Mainly intended for the Use of Young Engineers and for Examination Purposes. By Robert Grimshaw, M.E. New York: John Wiley & Sons. 1886. 16mo, pages 195 (including Index). $1.

This volume does not contain, it is said, a single question or answer that appeared in the first volume. The character of the matter in this has been largely determined by the questions that the author received from running engineers and others after the appearance of the first volume. The index occupies 19 closely printed pages.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

GRANTED OCTOBER 5TH, 1886.

350,343. Means for Packing Sheet-Metal Roofing. Benjamin F. Caldwell, Wheeling, West Va.
350,344. Device for Packing and Protecting Sheet-Metal. Benjamin F. Caldwell, Wheeling, West Va.
350,357. Wire-Nail Machine. Thaddeus Fowler, Shelton, Assignor of one half to Thomas B. De Forest, Birmingham, Conn.
350,361. Header for Steam-Boilers. James Hartley, Brooklyn, New York, Assignor to the Pioneer Iron-Works, same place.
350,362. Centrifugal Pump. Eli J. Hawley, Manchester, Vt.
350,366. Die for Cutting Screws. George Holstein, Spuyten Duyvil, New York.
350,385. Middlings-Purifier. Udolpho H. Odell, Dayton, Ohio.
350,388. Detector for Marsh and other Hydro-Carbon Gases. Nelson W. Perry, Norwood, Assignor of one half to Herman John Groesbeck, Cincinnati, Ohio.
350,412. Flagging Machine. Robert A. Carter, Pittsburg, Pa., Assignor of one half to James M. Bailey, same place.
350,415. Hydraulic Cement. Uriah Cummings, Buffalo, New York.
350,421. Pipe-Couplings. Solomon R. Dresser, Bradford, Pa.
350,428. Soda-Motor. Arnold J. Grafenstatt and William Tweedie, Minneapolis, Minn.
350,440. Steam-Boiler. Joseph A. Mumford, Hansport, Nova Scotia, Canada.

GRANTED OCTOBER 12TH, 1886.

350,482. Electric-Lighting System. Philip Diehl, Elizabeth, New Jersey.
350,483. Steam-Generator. Norman Eaton, Woburn, Mass.
350,494. Rock-Crusher. Joel B. Low, San Francisco, Cal.
350,497. Manufacture of Pyroxyline. George M. Mowbray, North Adams, Mass., Assignor to the American Zylonite Company, New York City.
350,498. Manufacture of Pyroxyline. George M. Mowbray, North Adams, Mass., Assignor to the American Zylonite Company, New York City.
350,534. Apparatus for Charging Blast-Furnaces. Josiah M. Gettel, Lebanon, Henry C. Grittinger, Cornwall, and John H. Killinger, Lebanon, Pa.; said Grittinger and Killinger Assignors to said Gettel.
350,543. Stone-Dressing Machine. Jonathan Mann, Milton, Mass.
350,556. Smoke-Consumer. John M. Pitcher, Sugar Creek, Hancock County, Ind.
350,557. Rolling Old Rails to Flat Plates. Jacob Reese, Pittsburg, Pa.
350,558. Rolling Old Rails to Street-Rails. Jacob Reese, Pittsburg, Pa.
350,562. Smoke-Consuming Furnace. Hermann Rösicke, Berlin, Germany.
350,563. Machine for Reducing Ores. Albion M. Rouse, Boulder, Colo.
350,564. Machine for Pulverizing Ores and other Materials. Albion M. Rouse, Boulder, Colo.
350,568. Valve for Hot-Blast Ovens. Victor O. Strobel, Philadelphia, Pa.
350,569. Cleaning Apparatus for Hot-Blast Ovens. Victor O. Strobel, Philadelphia, Pa.
350,574. Art of Reducing Unsmelted or Partly Smelted Ore. Jacob T. Wainwright, Allegheny, Pa.
350,587. Process of Manufacturing Steel. James Henderson, Bellefonte, Pa.
350,590. Shutter or Door for Mines. George W. Nation, What Cheer, Iowa.
350,632. Steam-Pump. John T. Leftwick, Greensburg, Ky.
350,633. Oscillating Engine. Yost Lusse, Philadelphia, Pa.
350,655. Packer for Oil-Wells. John D. Brooder, Kane, Assignor to himself and F. J. Clemenger, South Oil City, Pa.
350,669. Process of Extracting Metals from Ores. Frederick M. Endlich and Nicholas H. Muhlenberg, Lake Valley, New Mexico.
350,670. Process of Separating Products of Lixiviation and Similar Compounds. Frederick M. Endlich and Nicholas H. Muhlenberg, Lake Valley, New Mexico.
350,728. Electric Motor or Generator. Frank E. Fisher, Detroit, Mich.
350,755. Steam-Pumping Engine. Joseph L. Lowry, Pittsburg, Pa.
350,763. Steam-Pump. Henry J. Oliver, San Francisco, Cal., Assignor of one half to Joseph Pracy, same place.
350,769. Petroleum and Gas Motor. Gaston Ragot and Guillaume Smyers, Brussels, Belgium, Assignors to the Société Anonyme des Moteurs Inexplosibles au Pétrole Ordinaire et au Gaz, same place.
350,783. Apparatus for the Combustion of Liquid Hydrocarbons. Percy Tarbutt, London County of Middlesex, England.
350,814. Coal-Breaker. Eckley B. Coxe, Drifton, Pa.
350,833. Rolls for Reducing Old Rails. Sidney McCloud, Hamilton, Ontario, Canada, Assignor of one half to Charles E. Doolittle, as Trustee for the Ontario Rolling-Mill Company, same place.
350,858. Rolling Machinery. James J. Anderson, Chicago, Ill., Assignor of one half to Asa G. Pettibone and A. H. Mulliken, both of same place.
350,859. Machine for Making Car-Coupling Links. James J. Anderson, Chicago, Ill., Assignor of one half to Asa G. Pettibone and A. H. Mulliken, both of same place.
350,875. Double-Acting Pump. Thomas Dyson, New York City.

PERSONALS.

Mr. Andrew Carnegie is lying quite ill at Cresson, Pa., but advices to-day say he is much improved.

Col. Charles Whittlesey, the distinguished geologist, died at Cleveland on the 18th inst., in the seventy-ninth year of his age.

Mr. Hugh Watson has resigned as manager of the Central Furnace of the Cleveland Rolling-Mill Company, Cleveland, Ohio. He has accepted a similar position with the Western Steel Company, of St. Louis.

Mr. S. Raunheim leaves for the West soon in the interest of American and European capitalists, to examine several mining properties and to report whether it will be advisable, from a commercial point of view, to erect large works. Mr. Raunheim may be addressed through P.O. Box 3, New York City.

Dr. John S. Newberry, Professor of Geology in Columbia College, of this city, will contribute to the November number of the *Popular Science Monthly* the story of the great ancient ice-sheet that once covered half our continent, and which, more than any other single cause, gave to it its present surface configuration.

Mr. Bayard T. Putnam, who was employed in the Geological Survey at Newport, R. I., for several years as assistant geologist under Professor Pumpelly, died last week. About two years ago, he had a severe attack of typhoid, and never entirely recovered, and it is supposed that, in a fit of temporary mental aberration resulting from the fever, he put an end to his life.

Mr. J. G. A. Meyer has joined the editorial staff of the *American Machinist* of this city. Mr. Meyer is an experienced mechanical engineer, and is familiar with both railroad and other mechanical practice. For some time, he was engaged in Roach's shipbuilding establishment, and during the last ten years has been chief draftsman and designer at the Grant Locomotive-Works, a position that he resigns to accept this new one.

Thomas M. Carnegie, of the firm of Carnegie Brothers & Co., Limited, brother of Andrew Carnegie, died of pneumonia, on the 19th inst., aged forty-three years. His death was unexpected. As late as Thursday last, he was at his post of duty as chairman of Carnegie Brothers & Co. at their office in Pittsburg. Thomas M. Carnegie was born in 1843, in Dunfermline, Scotland, and arrived in America four years later, coming directly to Pittsburg with his father. When he was quite young, he was taken into the telegraph department of the Pennsylvania Railroad Company, where his brother Andrew was already employed. He learned telegraphy and was a careful and expert operator. After a few years, he became a clerk to and assistant of the general superintendent of the system. While he was yet under eighteen years of age, with Messrs. Andrew Kloman and Henry Phipps, Jr., he formed a partnership for the manufacture of iron on a small scale. Five years later, this firm consolidated with another, of which Andrew Carnegie and Thomas N. Smith were members. The Edgar Thomson Steel-Works and other kindred establishments were acquired; and in April, 1881, the partners organized the firm of Carnegie Brothers, Limited. Thomas was elected chairman, and held that position until his death. He was also director in coke and coal companies, the Keystone Bridge-Works, and the Lawrence and Third National banks.

FURNACE, MILL, AND FACTORY.

Work is pushed on the furnace of the Sheffield Furnace Company, Sheffield, Ala.

The Hudson River Ore and Iron Company, of New York, has purchased the Cold Spring furnace, which will now be started up again, after being idle several years.

Messrs. Miller, Metcalf & Parkin (Crescent Steel-Works), Pittsburg, Pa., have perfected arrangements for the manufacture of self-hardening steel, and are now offering it on the market.

The Stony Creek Rolling-Mill, Norristown, Pa., has been leased by Potts Brothers, of Pottstown, Pa., and active preparations are making to start up as soon as possible.

A brass rolling-mill is building at Kenosha, Wis., under the superintendence of Mr. Charles C. Horn, of Waterbury, Conn. It is intended to have the works in running order by next January.

The John A. Roebling's Son's Company, of Trenton, New Jersey, has this year used more than 1000 tons of copper in the manufacture of telephone and telegraph wire, and it is stated that copper is taking the place of iron for these purposes.

The works of the Roller Chain Belting Company, of Columbus, Ohio, are running night and day, and new machinery is added. With these facilities, the company will be able to supply the rapidly increasing demand for its roller chain.

Hooven & Son have leased their blast-furnace in Norristown, Pa., which has not been in operation for some time, to Isaac McHose, an iron manufacturer of Reading, who will put the furnace in blast as soon as needed repairs can be completed, and begin the manufacture of Bessemer pig-iron.

The Ashland Iron and Steel Company has been organized at Ashland, Wis., with the following officers: President, W. W. Eastman; Vice-President, H. C. Henry; Secretary and Treasurer, Cavour S. Langdon; General Manager, James E. York. The purpose is to build a blast-furnace at Ashland.

The Creosote Lumber and Construction Company has been organized under the laws of North Carolina, with a capital stock of $500,000. The machinery for a large creosoting plant and wood creosote oil manufactory has been ordered, and will be put up at Fernandina, Fla., or at St. Mary's, Ga.

The largest output of Bessemer and open-hearth steel ever made at the works of the Pennsylvania Steel Company, Steelton, Pa., was in September: Bessemer steel, 22,863 tons; open-hearth steel, 2040 tons; total, 24,903 tons. The production of steel rails for the month of September is also the largest on record at this mill.

The South Boston Iron-Works, Boston, Mass., suspended operations on the 16th inst., on account of inability to pay the workmen. For the past six weeks, the men have received no pay, and the suspension is explained by the fact that the government owed the works $75,000 for rifled cannon, cartridges, and other ordnance material, and the appropriations not forthcoming, the resources of the company became almost exhausted.

The Rand Drill Company, of New York City, has shipped the fourth duplex compressor to the Hydraulic Power Company at Quinnesec Falls, Mich. The cylinders of this are 36 by 60; the other three compressors were 32 by 60, and have been in use two years. They are worked by water from the falls. The main air-pipe is 24 inches diameter and three miles long. The compressed air drives all the machinery of the Chapin and Ludington iron mines.

The Sawyer-Man Electric Company, of New York, has succeeded the Consolidated Electric Light Company, and will hereafter control and operate the Sawyer-Man patents for electric lighting. The principal point in this system is, that the company's dynamo is automatic in its regulation, and will maintain a uniform light with all or any portion of lights in circuit; the lamp will not blacken, and will maintain its candle-power during its guaranteed life. There are now over 14,000 lights in process of construction.

The company of Eastern men that bought the iron-works, West Middlesex, Pa., to manufacture steel directly from iron ore by Dr. Eames's process has not been successful in its operations there. The want of success is attributed largely to the necessity of using coal and to the impurities resulting from it. The experiments with natural gas that were formerly carried on at the Fort Pitt Iron-Works, at Pittsburg, have therefore been resumed, and a new double furnace is erecting for the purpose.

The Chicago Steel Company, Chicago, Ill., has contracted with Mr. James P. Witherow, of Pittsburg, for the erection of a complete Bessemer steel plant at Hammond, Ind. The plant, when completed, will have a capacity of 150 tons a day, and its product will be steel nails, car axles, and steel billets. Contracts have also been made with the Lewis Foundry and Machine Company, Limited, of Pittsburg, for the erection of a first-class three-high blooming train and for the rebuilding of a plate train, and four regenerative gas furnaces by M. V. Smith, of Pittsburg, consulting engineer of the company.

The report made in the Federal Court, St. Louis, Mo., last week by the special master, John Wickham, in the St. Louis Ore and Steel Company's case, shows that allowances aggregating $32,153.68 were recommended. The master recommends that $60,000 be the price named in the court's decree to be paid by the purchasers' committee at the sale for payment of expenses and cost of litigation, etc. The signatures in respect of 33,671 shares of the Ore and Steel Company have been obtained to the scheme of reorganization, and 993 Ore and Steel bonds have been received by the committee, likewise 994 Vulcan bonds.

LABOR AND WAGES.

The strike of the puddlers at Lebanon, Pa., ended on the 16th inst., the men returning to work on a compromise. They struck for $4 a ton, and will receive $3.85. The strike lasted seven weeks.

The strike of the iron molders at Paterson, New Jersey, continues. It is said that an order from South America for $30,000 worth of machinery was recently refused, because of the uncertainty as to what the men will do, and the order went to England.

The conference between the Executive Board of the Knights of Labor and the striking miners at Duquoin, Ill., resulted in the men determining to return to work. Both sides made concessions, and the new agreement is satisfactory all around. The mines started up on the 21st inst., for the first time in seven weeks.

The united nail-feeders of the factories under the control of the Sharon Iron Company and the Atlantic Iron Company, at Sharon, Pa., returned to work on the 18th inst., after a long strike for an advance from one half to three fifths of the amount netted the nailers having their machines in charge. The nailers broke the strike by introducing the Harden automatic feeder, which obviated the absolute necessity of employing the strikers.

The miners representing the Pennsylvania, Hickory Ridge, Hickory Swamp, Enterprise, Excelsior, Luke Fidler, and Cameron collieries, operated by the Union Coal and Mineral Mining Companies, met at Excelsior, Pa., on the 16th inst., and resolved to strike for the restoration of the ten per cent reduction made last January, unless the companies should voluntarily concede it. This action affected all the collieries in that region, except those operated by the Philadelphia & Reading Company.

COAL TRADE NOTES.

CANADA.

PROVINCE OF MANITOBA.

The difficulties of the Saskatchewan coal mine are over and the property taken out of the hands of the court. It has been leased to E. D. Moore, of Winnipeg, who is going to push it vigorously and has let a contract for the mining of the coal. The contractors are to turn out 250 tons of coal a day. This will be sent all along the line of the Canadian Pacific Railroad, and delivered in Winnipeg at a figure not to exceed $6.50.

Work is progressing satisfactorily at the Galt coal mines. Some new Ohio machinery has been set up at the mines, so that in the event of a strike operations may go on just the same, as inexperienced men can operate the machinery. Sir A. T. Galt has just inspected the mines, and states that, with the improved facilities, they will be in a position by the first of November to turn out 400 tons of coal daily.

NORTHWEST TERRITORY.

The Canadian Anthracite Mining Company has been organized, with a capital of half a million dollars, for the purpose of working and developing the Stewart coal mines near the famous hot springs at Banff, in the Rocky Mountains, on the Canadian Pacific Railroad. The necessary deposit of $50,000 has been made with the government. The principal promoters, who have associated with them several wealthy American capitalists, are Senator Sharp, of Wisconsin, and Mr. McLeod Stewart, of Ottawa. The coal will be placed on the Winnipeg market, and the company, it is said, is arranging for the delivery of the output at any point between Montreal and the Pacific coast. It also proposes to supply the Western States, as well as California and the British naval station in the North Pacific.

PROVINCE OF ONTARIO.

The police magistrate has committed Patrick Burns, John H. Venables, and Thomas Johnston, for trial for

defrauding the city of Toronto, Ont., on coal contracts. Judgment was also given in the charge against Burns, Quartermaster-Sergeant Swanson, and George McInerney of perpetrating fraud upon the Dominion government in connection with the delivery of coal to the infantry school. The defendants were committed for trial.

ILLINOIS.

The Enterprise Coal Company has been organized at Chicago, with a capital stock of $50,000 ; incorporators, R. P. Burhans, W. M. Wilson, and William Siebert.

PENNSYLVANIA.

ANTHRACITE.

The work of clearing out the slope at Gilberton Colliery, Gilberton—owned by the Philadelphia & Reading Coal and Iron Company—which caved in on September 20th, is progressing very rapidly, and it is thought the colliery will be able to resume operations by November 1st.

Messrs. Leisenring & Co., of Mauch Chunk, have just completed a satisfactory test of the coal land on Broad Mountain, between New Boston and Gordon Plane. They have opened out the Buck Mountain, Skidmore, and Mammoth veins on both dips, and found them equal in thickness and quality to any worked in the region. The Mammoth was found twenty feet thick. A number of large mines will soon be opened on a tract hitherto neglected.

COKE.

At the monthly meeting of the coke syndicate, held at Pittsburg, on the 18th inst., it was decided to reaffirm, the selling price of coke for the last month, and to run all of the ovens at their full capacity. The regular selling price of coke for the month will be $1 50. To dealers it will be $1.60, and to foundries $1.75. The Connellsville District is suffering greatly from the scarcity of cars.

TENNESSEE.

A. M. Wall, of Stevenson, Ala., has successfully opened a vein of coal a few miles from Jasper.

It is reported that a syndicate has been formed in this State with a capital of $1,000,000 to manufacture coke. The company owns 98,000 acres of good coal lands.

WEST VIRGINIA.

The Orrel Coal Company, of Newburg, is completing arrangements for a new industry, to have its headquarters at Parkersburg. Contracts have been made with the Baltimore & Ohio Railroad for the transportation of the products, coal and coke, with the view of building up a Western trade. It will erect tipples, switch tracks, and such other improvements as are necessary for the business. From Parkersburg, the shipments will be by river on barge and tow-boats.

WISCONSIN.

The Ashland Coal Company, organized at Ashland, has leased the Lake Shore & Western's coal dock, which is to be fitted up with all the modern appliances for discharging and handling coal, with abundant steam-power, etc. Mr. T. F McCarthy is the general manager. This season, it is not expected to more than supply the local demand ; but next year, the company will extend its business all over the Northwest, doing a wholesale business.

GAS AND OIL NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to October 16th :

	1886. Gallons.	1885. Gallons.
From Boston	4,540,132	7,181,916
Philadelphia	117,949,388	122,388,745
Baltimore	12,582,444	8,825,774
Perth Amboy	4,476,466	...
New York	309,995,984	299,320,539
Total exports	449,544,414	437,716,974

The Chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of September, 1886, and during the nine months ended September 30th, 1886, as compared with similar exports during the corresponding periods of the preceding year as follows: September, 1886, $4,365,223 ; September, 1885, $5,421,212 ; nine months ended September 30th, 1886, $35,546,213 ; nine months ended September 30th, 1885, $37,122,848. These exports comprise about 99 per cent of the total exports in mineral oils.

PENNSYLVANIA.

The Standard Oil Company has purchased the Empire and American oil refineries at Pittsburg for $1,225,000. The purchase includes the independent pipe lines running from the Butler and Washington oil-fields. Negotiations are also said to be pending for the purchase of a number of other independent refineries in this vicinity.

The Westmoreland & Cambria Natural Gas Company has finished the laying and connecting of its pipe line from Grapeville, Westmoreland County, to Johnstown, Cambria County, and has turned gas into the pipes of the Cambria Iron Company, and to a portion of the town of Johnstown.

The Washington Natural Gas Company, which supplies gas to the People's Pipage Company of Alleghany, has begun work on a second line across the Ohio River from Sawmill Run to Beaver avenue, Alleghany. The People's Pipage Company's business in Alleghany is assuming such proportions that the Washington Company will turn two new wells into its line before winter. One of the wells on the Carlisle farm at Hickory is down 1800 feet, and will be drilled to the top of the sand within a week. The other well, which is in the same district, is down 1600 feet, with indications of being a good one.

The Pennsylvania Natural Gas Company has decided to lay a new 16-inch main into the city of Pittsburg from the Perrysville field this fall. It will also begin work at once on a big system of low-pressure extension lines throughout the lower part of the city from Smithfield street to the Point. It was the original intention to postpone this work until next spring, but, owing to the press of orders for gas, the matter was reconsidered, and it was thought more expedient to do it at once.

The Sewickley Gas Company has purchased the gas well of the Ohio Valley Company, in Sewickley borough. The intention is to purify and carbonize the gas for illuminating purposes.

GENERAL MINING NEWS.

The total shipments of ore from Ashland during the season of 1886, up to and including the week ended October 13th, were as follows :

GOGEBIC DISTRICT.

Ashland	56,847	East Norrie	8,918
Aurora	74,453	Nimikon	2,941
Iron Chief	9,030	Odanah	8,646
Bessemer	4,726	Pabst	14,150
Brotherton	9,900	Puritan	12,036
Colby	211,717	Sunday Lake	7,915
Iron Chief No. 2	530	Superior	2,021
Iron King	19,216	Trimble	9,403
Ironton	15,070	Pewabic	55
Germania	13,392	Valley	1,840
Kakagon	14,532		
Montreal	8,281	Total ore from Ashland	612,993
Norrie	105,374		

ALABAMA.

The sale by Mr. H. F. de Bardeleben of his interest in the Mary Pratt Furnace to Mr. J. H. Woodward, is reported. Mr. de Bardeleben's shares in the Pratt Company sold to Colonel Ensley, it is said, formed the basis for the big deal above referred to, and now he appears to have unloaded from the Mary Pratt. Appearances indicate that he intends to devote all his force and fortune to the rapid development of the Bessemer steel industry at Bessemer, together with the large ore and coal interests allied to that movement. Of late, he has been busy with the proposed extension of the East & West Alabama road, which must be extended to bring the Cartersville Bessemer ores to the town of Bessemer ; and that he has also other fish to fry, is easily credited by those who know the extent and rapidity of tnis Napoleonic operator's maneuvers.

ARIZONA.

GILA COUNTY.

Cross-Cut Silver Mining Company.—A tunnel is driving in the New Translation claim, to strike the ledge, 220 feet in. The work has already progressed 180 feet. A contract has also been let to sink a shaft 100 feet.

MARICOPA COUNTY.

Phœnix Mining Company vs. S. F. Mack and Others.—The long-contested mining suits of the Phœnix Mining Company *vs.* S. F. Mack, and Seymour *vs.* S. F. Mack, involving title to a valuable group of mines in Cave Creek District, were decided against Mack on the 15th inst.

AUSTRALIA.

An immense exodus of men toward Waukaringa, in South Australia, is in progress, in consequence of the discovery of alluvial gold there.

CALIFORNIA.

MONO COUNTY—BODIE DISTRICT.

Bulwer.—They are now taking ore from the surface tunnel, letting it down to the tunnel level ; also from the 100, 200, 300, and 400 tunnel levels. Assays from all these points will give a good profit over all expenses. The mill is running on Bulwer ore.

Mono.—Rich ore is taken out below the 700 level.

Standard.—The Bulwer Company requiring its side of the mill, a clean-up was made during the week ended the 9th inst., also of the tailings on the Standard side, and the crushing of ore was resumed on that date.

NEVADA COUNTY.

Chicago.—The case of the Chicago Mining Company *vs.* John Oliver, to quiet title to land on Gold Flat near Nevada City, which has been before the Superior Court recently, involves some important questions. In 1870, the Central Pacific Railroad Company got a patent to the land under an act of Congress passed in 1862. In 1879, a quartz location, including a surface area of 1500 by 600 feet, was made within its boundaries, and in 1884 a United States quartz patent was issued to the Chicago Company. It is the first time a case of this kind has come up in Nevada County, and perhaps this is the first one involving all the same points that has been tried in the State. Judge Sawyer has decided in the Circuit Court that a railroad patent is good against mineral claimants, but the Chicago claims that there are other decisions to the contrary.

COLORADO.

CLEAR CREEK COUNTY.

The remaining half-interest in the Rustler lode and mill-site, and the Oneida lode, all of which property is situated in Trail Creek Mining District, has been sold to James A. Fleming, of Denver, for $65,000.

Freeland.—Official reports for September show : Gold, $20,808.55 ; silver, $3954.53 ; copper, $120.82 ; total, $24,883.35.

Great Republic.—A half-interest in this lode, in Atlantic District, has been sold for $5000.

Maud Ethel.—A fifth interest in this lode, Middle Park, was sold to Boston parties for the sum of $20,000.

Plutus.—The product for September, as by official advances, was : Gold, $3930.71 ; silver, $2902.47 ; copper, $111.17 ; total, $6944.35.

Settler.—This mine was sold at sheriff's sale for $5032 to Dr. Kling, of Idaho.

GILPIN COUNTY.

Aurora Gold Mining and Milling Company.—The property of this company was recently sold by the sheriff, under an execution in favor of Charles W. Price, for the sum of $2300 to Mr. Rutledge, of St. Louis, Mo. The property is on the southerly slope of Quartz Hill, and is known as the Charter Oak group of mines. It is the intention of the purchaser to resume work on the property as soon as a plant of machinery can be obtained to place over the main shaft of the Charter Oak.

Garden.—The company that has been operating this mine has renewed its lease for three years, and will develop the mine to greater depth.

LAKE COUNTY.

Number of furnaces now on blast at Leadville foot up to twenty, as follows :

	No. of Furnaces.	No in Blast.
American	4	4
Arkansas Valley	7	7
La Plata	5	3
Harrison	4	3
Manville	3	3
Total	23	20

The amount of ore reduced daily by these furnaces should not fall short of 800 tons, which is considerably more than either Denver or Pueblo smelts, and nearly as much as the two places combined.

From the Leadville *Herald-Democrat* we condense the following :

The operation of the Leadville smelters proves gratifying. There are now twenty furnaces in blast, against twelve or thirteen this time last year. During 1885, the Leadville smelters produced 19,125 tons of lead. The base bullion product so far this year shows a total of 18,575 tons ; deduct for silver, 165 tons ; product of lead to October 1st, 18,410 tons. The lead production of this State will probably not vary much from the estimates previously made, namely, 55,000 tons. The shipments of ore from Leadville at

present are confined mostly to sulphide and argentiferous iron ores.

American Mining and Smelting Company.—Work has been suspended on the Emmet property on the south slope of Carbonate Hill, worked by this company. The property was worked through a winze sunk some distance from the shaft, in the 280-foot level. The winze encountered dolomite sand, with a strong flow of water, making it impracticable to continue work.

Arkansas Valley.—This smelting company has started up two of its large new furnaces, making now in operation seven furnaces. All of the furnaces are as large as it is practical to build a water-jacket blast-furnace, and on tractable smelting ore the works should now treat over 9000 tons a month.

Ideal.—A new shaft will be started on the Midnight lode of this company, on Little Ella Hill. The shaft will be 500 feet from the present productive shaft, and in the trend of the ore-chute.

Iron Silver.—The company is taking a good deal of rich ore from a small fraction claim on the west slope of Iron Hill, opened by the McKeon shaft.

Little Miami.—Mr. Frank Nicholson, of St. Louis, has been examining this old mine, situated in close proximity to the Small Hopes and the Tip Top, adjoining the former. As in the case of the Tip Top, a shaft was sunk on it in the earlier days of the camp, in 1882, pushed to the pay contact, and then allowed to remain idle. The shaft is enlarging, following the same plan of work adopted by the Tip Top. If the report proves satisfactory, a company will be organized with a capital of $100,000, and the shares put on the St. Louis market.

Robert E. Lee.—The lease of Dr. Page, on the old north workings, is producing handsomely. A large body of iron ore, prolific in bunches and streaks of chloridized mineral, is worked.

Silver Cord.—The lease on the sulphide-producing portion of this mine shows ore as extracted running from 15 to 20 per cent in lead and from 6 to 10 ounces in silver. It is concentrated at the Douglass mill, in California Gulch, where a product is made running from 40 to 60 per cent in lead and from 12 to 15 ounces in silver. The product is sold to the American smelter, returning a fair profit.

St. Kevin.—It was expected to start up the new concentrating mill on the 17th. At the mine the shaft, which is 250 feet deep, is to be sunk fifty additional feet.

DAKOTA.

LAWRENCE COUNTY.

Caledonia.—The official report of the superintendent, dated the 11th inst., shows that during the week 1229 tons of ore were produced. There are 91 men employed. The mill is running.

Iron Hill.—The smelter is running satisfactorily. The first shipment of bullion was made on the 15th inst. It consisted of nearly two car-loads. Much more remains at the works that, owing to a lack of transportation, has not yet been brought over. The lead produced, it is said, pays all expense of mining, smelting, transportation, and refining, leaving the silver net profit. Bullion will be sent to Omaha or Kansas City for refining. Shipments were to begin this week.

GEORGIA.

FLOYD COUNTY.

John Bogenshatt has opened a valuable quarry near Rome, mainly to procure stone for the masonry of the two iron bridges to be erected at Rome; but the working of the quarry will be continued indefinitely.

IDAHO.

Bannock Gold and Silver Mining Company.—The company's new twenty-stamp mill started up on the 10th inst., and is running smoothly. The first shipments was expected to reach Salt Lake City this week, after which regular shipments may be looked for. The mine is reported to be in a good condition.

Hunt.—These placer mines on the Alturas County side of Snake River, two miles and a half below Salmon Falls, have been operated the present season by five machines, with grizzly plates and six burlap boxes. The production of each machine per month has been $350 of high quality of gold, 945 fine. During the past three winters, there has not been a single clean-up missed on account of cold weather.

Idaho Sampling Mill Company.—This organization has just been effected for the incorporation of the sampling-works at Hailey, heretofore owned by Conklin & Swift. The new company has just completed arrangements for the erection of a new sampling mill at Bellevue, and arrangements have been made with the principal mines and ore-shippers, most of whom are stockholders in the corporation, for the sampling of their ores.

Minnie Moore.—This mine is reported to be making a wonderful showing in the lower levels, where are exposed ore-bodies ten feet wide, averaging $150 a ton. From the 1st of April to the 30th of September, there has been shipped from the mine ore to the amount of $227,588 net, after deducting railroad and smelting costs. Some old bills against this mine have been paid.

Viola Company, Limited.—This company has been organized in London, with a capital of £150,000, shares £1 each, to acquire the shares of the Viola Mining and Smelting Company, and to continue the working of the Viola and adjoining properties. The property is in Lembi County, about 60 miles from Camas station on the Utah Northern Railroad, and consists of three freehold claims of about 50 acres; three freehold mill-sites of about 15 acres; leasehold mines at Spring Mountain, about twelve miles from the other claims; the tunnel site, conferring the right to all lodes or veins for a distance of 3000 feet. The title to the freehold portion of the property is by patent directly from the United States government, free from all royalties or rentals. Since the 1st of August last, the mine has been worked for and on account of this company, and the vender has guaranteed that the bullion unrealized, working stores, and cash standing to the credit of the company at its bankers (all of which is handed over to this company) amounted on that date to £25,000. This amount, it is expected, has been considerably increased, as the weekly reports are of a very favorable character. The plant, which has cost more than £20,000, consists of two large smelting furnaces, machinery and buildings, boarding-houses, ore coke houses and fuel sheds, offices, tramway, telephone line of 60 miles in length, and every thing complete for the transaction of a large business. The ore is carbonate of lead, containing from 37 to 58 per cent of lead, and from 4 to 15 ounces of silver a ton. Messrs. John Taylor & Sons, the well-known mining engineers of London, who examined this property in May last, report the quantity of reserves actually in sight to be upward of 28,000 tons, of an average assay per ton of 44·92 per cent lead and 6·54 ounces silver. The net earnings for the eight months ended September 1st are said to have been $129,175.41. Will some correspondent who knows the property tell us its value?

MICHIGAN.

Huron Mountain Land and Mining Company.—This company, the first meeting of which was held recently, has been organized by the shareholders in the Phelan Land Pool, who entered a lot of land many years ago in the Huron Mountains, Marquette County, which are believed to be very valuable for mineral and timber. The sale of the land or timber has been authorized.

IRON MINES.

The following statement, given by the Marquette *Mining Journal*, shows the amount of iron ore shipped from the ports of the districts given below, for the season of 1886, up to and including Wednesday, October 13th:

	Tons.
Marquette—Marquette District	725,912
St. Ignace— " "	62,595
Escanaba— " "	576,452
Menominee District	734,265
Grand total of lake shipments	2,099,254

Shipments of Pig-Iron.

Pioneer furnace	5,180
Deer Lake furnace	1,505
Vulcan furnace	10,292
	16,977

The gain over the shipments from the above ports, during the same period in 1885, is 310,194 gross tons.

MINNESOTA.

ST. LOUIS COUNTY.

Minnesota Iron Company.—During the season of 1886, including the week ended October 13th, there were shipped from Two Harbors 264,334 tons of ore from this company's mines.

Pioneer Iron Company.—This company has been organized to operate in the new iron district northeast of Tower, in the Vermilion District.

MONTANA.

DEER LODGE COUNTY.

The Katy and Old Chief lodes, north of the Granite Mountain mine, have been bonded to Helena capitalists. The ledge in both claims is strong, well defined, and carries about three feet of quartz, some of it very high grade. It is stated that a 500-foot tunnel will, under contract, be run on the vein, work to begin at once.

West Granite.—While in St. Louis, J. K. Pardee, general manager of this mine, sold 50,000 shares of the company's treasury stock to Matthews & Whitaker. The money goes into the company's treasury for the of development of the mine and the improvement of the stock.

LEWIS & CLARKE COUNTY.

Elkhorn.—Official advices state that the production for September amounted to 14,019·01 ounces of silver, and 7·897 gold. The company has spent some $30,000 besides dividends this year of $50,000, in erecting new machinery. The new five-stamp mill was to be in operation by this time. The company is prepared to sink to the 1000-foot level. There is said to be more ore in sight than ever before.

Montana, Limited.—During September, there were crushed 3050 tons of ore, yielding $134,100. The working expenses for the month were $36,000. Extra expenditures for the month on works in process of construction, cordwood, stores, etc., $26,300. The Frue machines, which this company purchased from vanner the well-known firm of Messrs. Fraser & Chalmers, of Chicago, some time ago, have proved a good investment to the company, as shown in a report issued for the first half of 1886. The company adopted this system of concentration after a series of experiments and investigation during a period of some months. It has been most successful, and one profitable result has been to increase the fineness of the bullion produced from 550 fine, as it was by the old process, to from 930 to 950 fine, as it now is. A considerable saving is also effected by the extraction of the base ore in the process of concentration before amalgamation in the pans. By the present process, from $3 to $4 per ton of ore is treated more than by the old process. The present process has resulted in reducing the loss of quicksilver 1·55 pounds per ton of ore treated to ·80 pound in June, and ·62 pound in July. Now, taking the average of these two months, it makes in round figures, and setting aside the odd decimals, this difference, that, for every ton of ore treated, the loss in quicksilver is three quarters of a pound, as against more than one and a half pounds by the old process.

MEAGHER COUNTY.

Neihart Improvement Company.—The concentrator erecting at Neihart by this company will probably be ready for operation November 1st.

SILVER BOW COUNTY.

Anaconda.—According to Butte papers, a serious land-slide several hundred feet in length began to work down the mountain near the Anaconda works last week. One railroad cut was filled on the 13th inst., and the track for about 200 feet shoved out of place. Communication with the new works is cut off on the upper track. The cause of the slide is supposed to be the result of the building of the large new flume on the mountain side above the works, which leaked for some time, and, getting into the fire-clay that underlies that section, the bottom of the mountain naturally caved away and thus started the land-slide. Large crevices can be seen on the mountain side. It is feared that the old works will be destroyed, causing much damage and delay in starting up the smelter.

NEVADA.

ELKO COUNTY.

Navajo.—The vein of No. 1 winze east vein, 350-foot level, continues strong.

North Belle Isle.—Good progress has been made with all the work in and about the mine. On the 150-foot level, the drifts from cross-cuts No. 1 and 2 have made good progress, and the vein in all the drifts shows a good width and grade of ore. In No. 1 winze, on this level, the hanging-wall is not to be seen in the winze, and the width of the vein at this point can not be determined. If possible, the ore at the present depth is richer than at any other point in the winze.

North Belle Isle vs. Nevada Mining Company and Others.—The United States Circuit Court for Nevada has granted a perpetual injunction restraining the Nevada Mining Company *et al.*, from working the

mines involved in the suit of the North Belle Isle *vs.* the Nevada Mining Company *et al.*

ESMERALDA COUNTY.

MOUNT CORY.—Sinking has begun. The shaft is down 100 feet below the water-line, and will be sent down 100 feet deeper, when the vein will be drifted for.

STOREY COUNTY—COMSTOCK LODE.

The Virginia City *Chronicle* reports the following: The resolution of the trustees of the Chollar mine, ordering the abandonment of the levels below the 2400, deals the death-blow to deep mining on the Comstock. The retrograde movement has begun in earnest. The day following the reception of the order, the 3200 level was stripped and abandoned. The consultation held in San Francisco between the trustees of the middle mines did not result in any modification of the resolution of the Chollar Company to shut down the levels below the 2400, through stopping the hydraulic pumps at the combination shaft. The work of stripping the levels of all the movable material of value below that point will be proceeded with. The hydraulic pumps will be left standing, as the cost of hoisting the heavy pipes to the surface would be more expensive than the new material could be purchased for, and besides, it could not be disposed of except for old iron. The abandonment of deep mining destroys the last glimmer of hope of future "deals" in Comstock mining shares. Operators argue that hereafter the upper levels will be worked on a mere milling proposition, leaving no chance for speculators to bull or bear prices through the possibility of important strikes, the management of the mines being content with the profit made on the price charged for crushing low-grade ores. A strange feature of the proceeding is the fact that W. S. Hobart, one of the Chollar trustees, is also a large shareholder in the Virginia & Gold Hill Water Company. The shutting down of the hydraulic pumps at the combination shaft will curtail the monthly revenue of the latter incorporation $10,000. To offset this, the rumor is revived that the pressure heretofore required to operate the hydraulics will be utilized to drive stamp mills to be erected in the cañon east of the Chollar old works for crushing ore from the mine, the extraction of which it is alleged will be resumed on an extensive scale. Repairs to the old hoisting-works now in progress lend a shadow of plausibility to the rumor.

ALTA.—Bunches of low-grade ore are continually cut in driving the uprise above west cross-cut No. 1 on the 700 level. The winze is down 18 feet below the floor of west cross-cut No. 2. The bottom is said to show ore. In the event of the pump at the Yellow Jacket starting up, the Alta will follow suit. The pumping-engine at the latter mine is in excellent repair, and can be set in motion in short notice.

BEST & BELCHER.—The 1700 level has been prospected down to the water-level. The ore extracted at that depth is higher in grade than that found above.

CHOLLAR.—Since work has been abandoned below the 2400-foot level, the hoist engine and building at the old works have been put in thorough repair preparatory to reopening the upper levels. The 1100 will be the first attacked. A west drift will be sent in to tap at that depth the vein that yielded a vast amount of low-grade ore between the surface and 250 level.

CONSOLIDATED CALIFORNIA & VIRGINIA.—During the week ended the 9th inst., 1058 tons of ore were shipped to the Morgan mill. The average value of the ore milled during the same period, according to assays from battery samples, was $19.53. Bullion of the assay value of $18,645.54 was shipped to San Francisco since last statement. Preparations are making for starting up the 80 stamps of the California mill in crushing ore from this mine. At least 50 more Frue concentrators will be required to take the pulp from the batteries. A building for the housing of them will be erected east of the mill.

HALE & NORCROSS.—The flooding of the 3200 level has caused a total suspension of operations at that point. Pending the stripping of the lower levels, the management is prospecting the 2800 level at one or two important points passed by in the haste of sinking.

SUTRO TUNNEL.—The rumor current that Messrs. Mackay and Flood have obtained control of the Sutro Tunnel is generally credited in San Francisco mining circles; but other persons say that there is no truth in the report. An effort is making to have the present owners of the tunnel reduce the rate of royalty on low-grade ore to one half the present figure, and to abolish it altogether on ore the average assay value of which will not admit of the payment of a royalty tax. In the event of the tunnel company consenting to the proposed reduction, a larger increase in the daily ore output will be the result, and the sum annually paid in royalty will be greater than at present.

YELLOW JACKET.—The management is considering the expediency of starting the pump at the new shaft for the purpose of draining the flooded levels of the Gold Hill mines. The cost of drainage will be borne jointly by the Crown Point, Alpha, Belcher, Exchequer, and Potosi companies.

WHITE PINE COUNTY.

ARGUS.—The management of this mine at Taylor submitted a proposition to the miners wherein it agrees to resume operations provided they will work for $3 a day. The miners have rejected the offer. Operations are therefore indefinitely postponed.

MARTIN WHITE.—This company recently milled about 1100 tons of low-grade ore that had accumulated, and netted some $15,000. From this amount, it is said the recent dividend was paid. The remainder will be used for future prospecting operations.

NEW MEXICO.

DONA ANA COUNTY.

LITTLE BUCK.—This mine, near Organ, has been bonded for one year by Greathouse to Samuels & Harris for the sum of $3000.

SOCORRO COUNTY.

GRAPHIC.—The capacity of this smelter at Socorro is to be increased by the reconstruction of the old No. 3 stack. The smelter is improved by the addition of a desulphurizing furnace.

NORTH CAROLINA.

CABARRUS COUNTY.

ROCKY RIVER.—This mine is worked, to some extent, by Mr. W. A. Smith, of Concord. The mine is equipped with ample machinery for the present work. The ore is free milling on the surface, and runs into sulphides as the water-line is reached.

GRANVILLE COUNTY.

It is stated that three companies are now working on the Blue Wing copper belt. A smelter of 60 tons capacity a day has been procured and is to be put up at an early day. As soon as the Durham, Blue Wing & Clarksville Railroad, running from Clarksville, Va., to Durham, N. C., which traverses the Blue Wing copper belt for a distance of 20 miles, is completed to the mines, doubtless more companies will be organized for working these deposits. Twenty-three veins, it is said, have been uncovered. One shaft of 85 feet was sunk, and on a shipment of 12 tons ore, 8700 pounds metal were produced, about 35 per cent pure. The quartz carries from $5 to $30 of silver a ton, sufficient to pay working expenses.

MECKLENBURG COUNTY.

HENDERSON.—At this mine, two bodies of ore have been cut, one long known, but so refractory as to have been avoided, and one new body of brown ore. Both bodies are wide, and, so far as explored, extensive and of more than ordinary grade. The ten-stamp mill is nearly completed, and the underground works are pushed vigorously.

ST. CATHARINE.—The deep shaft is sinking below the 370-foot level, and has reached the depth of 422 feet. A new body of ore, entirely unexpected, has been cut, and adds materially to the resources of the mine.

OHIO.

SANDUSKY COUNTY.

Work is soon to begin at the Fremont mineral paint mine near Fremont. The company has just elected the following officers: President, Roswell Carleton; Secretary, L. F. F. Abbott; Treasurer, E. G. Frothingham; Directors, R. Carleton, W. M. Fellows, W G. L. George, J. D. Weldon, L. F. F. Abbott.

SOUTH CAROLINA.

WAKE COUNTY.

The fire that broke out in the Pioneer Mills at Raleigh on the 20th inst. destroyed the mills and the phosphate factory adjoining. The phosphate factory was the only one in the State, working up valuable phosphate deposits recently found there. The loss on both factories, which were owned and operated practically by one corporation, is about $35,000. Rebuilding will begin at once.

TENNESSEE.

BLOUNT COUNTY.

A company has been organized with a capital stock of $100,000, to work the Abram's Creek slate mines, to which we referred in our issue of the 2d inst.

LAWRENCE COUNTY.

SHOAL CREEK IRON COMPANY.—This company began shipping from its ore-bank No. 1 on the 8th inst., the extension of the Nashville & Florence Rail road being completed. A brown hematite of superior quality is produced at this bank. The facilities and appliances for mining and washing are of the most improved type, having a capacity of one thousand tons per day of washed ore. The liberal policy of the Louisville & Nashville Railroad Company will enable these ores to reach many points in the North that heretofore have had no opportunity of procuring brown hematites from the middle Tennessee iron belt.

UTAH.

WASHINGTON COUNTY.

CHRISTY.—We have been officially informed that the production for September amounted to $20,601,73, all silver.

STORMONT.—It was the intention to close the mill on the first of this month, for thirty days; but circumstances have altered this plan, and the mill continues in operation. Ore is shipped from the Buckeye and Thompson mines. The stopes on 7th level are showing up well, and the richest ore in the mine is taken from that depth.

VIRGINIA.

CHARLOTTE MINING COMPANY.—This company, organized in Pittsburg, and of which Mr. James Fitzsimmons is president, John G. Swearingen Superintendent, and W. W. Cannon Secretary and Treasurer, has purchased 3000 acres of mineral land near the old Charlotte mine. An analysis of the ore gave $5.48 in silver and $5 in copper for a ton of ore. As soon as the charter has been granted, work will begin.

STAFFORD COUNTY.

RAPPAHANNOCK.—The superintendent reports that the ore in south drift, 250 level, is increasing in width and value. The ground breaks easier, and the level is advancing 12 feet a week. The mill was to start up again on the 22d inst., with new shoes and dies.

WISCONSIN.

WEST RANGE IRON COMPANY.—This company has been organized at Ashland, with a capital stock of $3,300,000, shares $25 each. The directors are: G. W. Harrison, G. H. Hopper, Frank V. Holston, B. B. Scott, W. W. Paddock, G. D. Sampson, and W. M. Tomkins. President, G. W. Harrison; Vice-President, G. H. Hopper; Secretary, W. M. Tomkins; Treasurer, B. B. Scott. The company owns three thousand acres of mineral land on the west side of the Penokee range.

MARKETS.

NEW YORK, Friday Evening, Oct. 22.

Silver.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
Oct. 16..	45⅛	97⅝	Oct. 20	45⅛	97¾
18..	45	97⅛	21	45 3-16	97⅞
19..	45 1-16	97⅛	22	45 5-16	98⅛

The market has been steadily advancing, owing in a measure to the moderate supplies.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, raised the bank's minimum rate of discount from 3½ to 4 per cent. During the week, the bank lost £136,000 bullion; but the proportion of its reserve to its liabilities was raised from 37⅛ to 40 per cent, against 35 9-16 per cent at the same time last year. On the 21st inst., the bank gained £26,000 bullion on balance. The weekly statement of the Bank of France shows a loss of 6,425,000 francs gold and a gain of 2,850,000 francs silver. Although the Bank of England's proportion of reserve to liabilities is 4 7-16 per cent greater than at this date last year, it now holds £2,773,191 less gold than it did a year ago, and hence the discount rate now is 4 per cent, against 2 per cent at date of last year.

Copper.—The copper market here is extremely firm, and is wholly independent of the London market, so far as any downward course is concerned; but should Chili Bars advance, no doubt our market would promptly follow. As it is, Chili Bars went down in London to £40 17s. 6d., and recovered to £41,

at which that market closes to day ; but here, prices are advancing, and are likely to advance somewhat farther.

We quote Lake 11½@11⅝c., and hear of sales between these figures. We quote Orford & Baltimore 10½@11c. The rumor that Anaconda might go to work soon was no doubt worked abroad to its full value during the week.

The land-slide that has carried away the Anaconda Railroad, and, it is said, has injured its calcining-furnaces, has put early resumption out of the question much before the end of the year, even if contemplated. Should Anaconda decide to resume work, it would, no doubt, be promptly followed by other concerns, and there might then be some copper for export. At present, the enormous consumption in this country is absorbing our entire lessened production and the small stocks we had on hand.

The contracts of Calumet & Hecla with the French Company are understood to expire December 1st, and there is an impression in some quarters that the failure of Chili to advance is due to a desire on the part of European would-be buyers of Lake copper to buy our article cheap. These tactics, if they exist, are not in the least likely to succeed ; for the entire output of Lake to the close of the year could be disposed of here without lowering the price, and is likely to be marketed at figures above those now ruling. Best Selected has advanced in London to £45 10s.

Tin.—Straits, which during the week declined in London to £99 5s., was rapidly absorbed here as it went down. To-day, the London market took a sudden turn, and went up to £101 5s., when the sales reported at the Metal Exchange in this city amounted to 365 tons, at from $22.40@$22.50, making fully 550 tons sold during the week, between the limits $21.85@$22.30 for spot.

The business done at the New York Metal Exchange has grown to quite respectable proportions, and its success is evidenced by the fact that nearly all the prominent metal houses in the city are now represented in it.

Lead.—This metal has not stopped sinking yet, but from 4·20@4¼c., which we recorded last week, it has gone down until 4·05c. has been accepted for at least two hundred tons, and we hear that St. Louis lead is offered here to-day at 4 cents.

Sales have aggregated only 300 or 400 tons, and, indeed, there is no desire on the part of manufacturers to enter the market while its future is so uncertain.

The troubles with the lead market are first that consumption is much less than it was a year ago. The Corroders at their meeting last week, compared notes, and we are told estimated that the amount of lead used in their business this year will be from 10,000 to 12,000 tons less than in 1885, and to a less degree other manufacturers have lessened their consumption. On the other hand, our imports have been quite large and our production greater than in 1885. The effect is seen in stocks quite inconveniently large, and including the stocks in manufacturers' hands, sufficient to account for the present condition of the market.

It is impossible to say how much lower lead may go, nor how much manipulation may have to do with its decline, but the statistical position of the metal is such that no important advance can be looked for until there is an improvement in the consumptive demand.

Messrs. Everett & Post, of Chicago, telegraph as follows to-day :

Market very dull, and no buyers in the market, and consequently it is hard to give figures. Everywhere in the West, the nominal quotation is 4·10c. Later advices state that one hundred tons were sold at 4·05c.

Messrs. John Wahl & Co., of St. Louis, telegraph us as follows to-day :

In sympathy with other markets, an increasing dullness has characterized our lead market, and prices have declined heavily. Early in the week, 700 tons sold at 4·05c. ; then 200 tons at 4c. To-day, 200 tons sold at 3·90c., with best bid at 3·80c. at the close.

Manufactures.—We quote Lead Pipe, 6¼c. Sheet, 7¼c., less the discount of 20 per cent.

Shot, $1.60@$1.85 per 25-pound bag. Dry White Lead, 5·97@6c. net.

Spelter.—There is no change in this market. We still hear 4·30c. as the figure at which Western brands can be purchased. We quote 4·30@4·40c. for Western, and 6½@7c. for New Jersey.

New Jersey Zinc Oxide, 4@4½c., according to grade. Silesian Spelter in London is quotod at £14.

Antimony.—We quote Cookson's at 9@9⅛c. Hallett's has remained at from 7½@7¾c. It continues to be quoted in London at £30.

Nickel.—We quote 60@63c.

Bismuth—Is quoted at $2@$2.25 a pound.

Aluminium—Is quoted at $1 an ounce.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 22.

American Pig.—This market is very firm, and good foundry irons are scarce. No change has been made in prices during the week, nor is any nominal change probable for some time, but better prices are obtained. We hear of sales of several thousand tons during the week. Lehigh brands are quoted, tide-water delivery : No. 1 X, Foundry, $19@$19.50 ; No. 2 X Foundry, $18@$18.50 ; Gray Forge, $16.50@$17.50 ; while less popular brands sell 50 cents below these figures, and fancy brands, such as Chickies, and others, sell at $20.50.

Southern foundry irons are in good demand and scarce. We hear of sales of 1200 tons of Sloss No. 1, at $19 ; but this company is so well sold up it is difficult to get its iron. Its second furnace has been blown in, and this will enable the company to catch up on its contracts.

Scotch Pig.—Prices here are unchanged, though warrants advanced in Glasgow 10d. during the week, and other brands in proportion. We quote : Coltness, $21.50@$22 ; Gartsherrie, $20.50 ; Summerlee, $20.75 @$21 ; Dalmellington, $19.25@$19.50 ; Langloan, $20 @$20.50 ; Clyde, $19.50@$19.75 ; Glengarnock, $19.50@$20 ; Eglinton, $18.50@$19. Cables to the Metal Exchange to-day quote : Coltness, 51s. 3d. ; Langloan, 47s. 3d. ; Summerlee, 48s. 6d. ; Gartsherrie, 48s. 6d. ; Glengarnock, 45s. ; Dalmellington, 43s. 6d. ; Eglinton, 43s. ; Warrants, 42s. 11d. ; Middlesboro', No. 3, 32s. 9d. Freights are 7s. 6d. @8s.

Bessemer Pig.—The demand for this grade of iron is very good and is likely to continue so on account of the very large amounts required in the present condition of the steel trade. Sales are reported at $18.50@$19 for Domestic and $19@$19.50 for Foreign.

Spiegeleisen.—The demand still continues active, and prices steady and firm at $25.50 for German ; $26 for English 20 per cent.

Steel Rails.—We hear of but a moderate business this week, though inquiries are in the market for very large amounts. Some of the mills have contracted for a considerable amount—1887 delivery—but generally there is a disinclination to make engagements beyond May next.

The European iron markets are improving, and though English mills will continue to sell their surplus for this country below their home quotations, any material advance there would probably bring about an advance here also. We continue to quote $34@ $35 nominal at Eastern mills for convenient and prompt delivery respectively, but even $35 can not buy prompt delivery at many of the mills.

Steel Plates.—The market is firm and a fair business doing. We quote for Tank, 2·60@2·70c. ; for Boiler and Ship Plates, 3@3¼c. ; for Flanges, 3½c. ; for Extra Flange and Fire-Box Plate, 4@4½c.

Steel Blooms and Billets.—We quote rail Blooms, $27 for foreign. We quote Billets, $28.50, according to size and quality.

Merchant Steel.—Our quotations remain as follows : American Tool Steel, 7½@10c. ; special qualities, 11@20c. ; Crucible Machinery, 4@4·50c. ; Bessemer and Open-Hearth Machinery, 2½c.

Plate Iron.—Common Tank, 2¼@2⅝c. ; Refined, 2¼@2½c. ; Flange Iron, 3¼@3½c. ; Extra Flange, 4@4·25c.

Rail Fastenings.—We quote Spikes, 2·15@ 2·25c. a pound ; and 1¾@2c. for Angle Fish-Bars ; 2·50@3c. for Bolts and Nuts.

Bar Iron.—The market is firm and demand good. We quote : Refined at 1·70@2c. ; Common, 1·65@ 1·75c. Store prices are ·10@·20c. higher.

Cast-Iron Pipe.—We quote $33@$34 a ton for 4-inch pipe ; $32 for 6-inch ; and $29 for 48-inch, at the foundry.

Old Rails—Are quite firm and scarce. For Tees, $22.50 is asked, and $23 for Double-Heads, but buyers' ideas are nearly $1 below these figures.

Scrap.—The market is firm. We quote $20@ $20.50 for Wrought yard scrap, and $13@$14 for Cast.

Philadelphia. Oct. 22.

[From our Special Correspondent.]

The high prices for forge and foundry iron are easily maintained, because there is nothing offering on the market. Demand seems to have slacked up, because an enormous amount of buying has been done, mostly for future delivery. Foundry is $19@ $20 for No. 1, and $17@$17.50 for No. 2. Mill irons are in request for December delivery at $16@$17. Poorer irons have been favored this week.

Foreign Irons.—But for the firm view of holders abroad and agents here, considerable business would be done in all kinds of foreign metals. Prices are very unsettled. It was rumored this afternoon that a large steel rail bloom order had been arranged for.

Manufactured Iron.—The mills here and throughout the State are very well sold up, and prices are firm for every thing. Refined iron in small lots is worth 2 cents. Large common iron orders have been booked at 1·65@1·70c.

Nails.—The makers claim that there is no weakness, but buyers who have ordered for December claim to have done so on concessions of 10 cents. Quotation, $2.10.

Plate and Tank Iron.—The demand is steady and prices firm at 2·20@2·30c. for Tank ; Plate, 2·15@ 2·20c.

Structural Iron.—Large orders arrived this week at New York and Pennsylvania mills, and the makers are in good spirits over the satisfactory progress of negotiations. Angles, 2·10@2·20c. ; Tees, 2·75c. ; and Beams and Channels, 3c.

Sheet-Iron.—Mills are doing well, and card rates are maintained.

Steel Rails.—Quotation $34@$35.50, according to conditions of order. An abundance of spring business is offered, and makers are not anxious to close so far ahead. A large amount of ore is arriving, besides numerous small lots of other foreign material.

Old Rails.—Prices are firm at $21.50@$22 for shipments, with very little business to report, but plenty of buyers anxious to do business at their own figures.

Scrap.—Large lots of scrap sold this week at $20@ $21 for selected.

Pittsburg. Oct. 21.

[From our Special Correspondent.]

The firmness we noted in our last has been maintained. Values still tend upward, with an active inquiry and a good deal of iron changing hands. The sales so far for October have been large. A continuation in the same ratio will make October, 1886, sales the largest ever made in any one month. Prices are higher than last week on certain grades. Our city furnaces, with few exceptions, are not offering at this time, preferring to trust the future. The outlook is certainly promising. People are wiser than they used to be, and they do not intend to advance prices to a point that would bring in foreign competition. A big boom would be certain to deluge our markets with imported iron ; in fact, it will not require a heavy advance on current prices to let in a large amount of various descriptions of iron that would, to a certain extent, take the place of iron and steel made by our own furnaces. Buyers and sellers should prevent this as far as possible, and not kill the goose that lays the golden egg. Another drawback here has been a lot of storage iron that has been on hand for several years. During the past three weeks, several thousand tons have been disposed of at less than current rates. It is to be hoped that the holders will see the importance of getting rid of the remainder as soon as possible.

Muck-Bar.—Firm ; holders asking an advance.

Old Iron Rails.—Prices nominal.

Pig-Iron.—Following are the current rates :

Coke or bituminous :	$	$
Foundry No. 1	18.00@	18 50
Foundry No. 2	17.00@	17 50
Gray F., No. 3	16 50@	7.00
" " No. 4	15.50@	16.00
White	14.75@	15 25
Mottled	15.25@	15.75
Silvery	15.50@	18.50
Bessemer	18.50@	19 00
Charcoal :		
Foundry No. 1	22.00@	23.00
Foundry No. 2	21.00@	22.00
Cold-Blast	24.00@	26.00
Warm-Blast	21.00@	24.00
20 p. c. Spiegel	28.00@	

	$	$
Muck-Bar	28.50@	29.00
Steel Blooms	32.00@	36.00
Steel Slabs	30.00@	33 00
Steel Crop Ends	22.50@	23.00
St'l Bl'm Ends	21 50@	22.00
Old Iron Rails	23.65@	24 50
Old Steel Rails	23.00@	23.50
No. 1 W. Scrap	@	18.00
No. 2 W. Scrap	@	17.00
Steel Rails	36.00@	36.50
" light sect'n	37.00@	40 00
Bar Iron	1 70@	1.80
Iron Nails	2 05@	2.10
Steel Nails	2.10@	2.15

LATEST IRON SALES.

Coke and Coal Smelted Lake Ore.

1000 tons	Gray Forge	$16.50	cash.
300 "	Gray Forge	16.50	cash.
1000 "	Bessemer	19.00	cash.
500 "	Bessemer	19 25	cash.
500 "	Gray Forge	17.00	cash.
500 "	No. 1 Mill	17.25	cash.
600 "	No. 1 Foundry, at furnace, all ore	17.35	cash.
500 "	No. 2 Foundry, at furnace, all ore	17.00	cash.
1000 "	Gray Gorge	16.80	4 mo

Coke, Native Ore.

200 tons	Close Gray	$16 00	cash.
40 "	No. 1 Mill	16 50	cash.
200 "	No. 1 Foundry	18.50	cash.
200 "	No. 2 Foundry	17.50	cash.

Muck-Bar.

500 tons	November delivery	$29 50	cash.
500 "	December delivery	30 00	cash.
300 "	Spot	29.00	cash.
500 "	Eastern delivery	31.50	cash.

Old Rails.

300 tons	old rails	$24.50	cash

Louisville. Oct. 20.

[Reported by GEORGE H. HULL & Co.]

Under a very large market and very large sales, an advance of fully one dollar a ton has been established in the general market. In fact, some high grades of car-wheel iron have advanced two dollars a ton above the price at which they were offered last week. Sales have been very large, and most Southern furnaces have booked orders for a large part of their product for the next six months. Sales booked have been so heavy that most of them are disinclined to book further orders at present prices. We quote for cash in round lots as below, four months' prices being fifty cents a ton higher :

PIG-IRON.

Southern Coke, No. 1 Foundry	$17.50@$18.50
" " No. 2 "	16.50@ 17.50
Hanging Rock Coke, No. 1 Foundry	17.50@ 18.50
" " Charcoal, No. 1 Foundry	20.00@ 21.00
Southern Charcoal, No. 1 Foundry	18.00@ 19 00
Southern Coke, No. 1 Mill, Neutral	15.50@ 16.00
" Charcoal, No. 1 Mill	16.50@ 17.00
Southern Car-Wheel, Standard Brands	23.00@ 25.00
Hanging Rock, Cold-Blast	23.00@ 26 00
" " Warm-Blast	20.00@ 21.00

COAL TRADE REVIEW.

Friday Evening, Oct. 22.

Statistics.

Production Anthracite Coal for week ended October 16th, and year from January 1st :

Tons of 2240 lbs.	1886. Week.	1886. Year.	1885. Week.	1885. Year.
P. & Read. RR. Co.	290,676	8,986,358	264,664	8,747,019
L. V. RR. Co.	168,403	4,837,406	170,249	4,621,677
D. L. & W. RR. Co.	136,105	3,901,012	153,899	3,761,178
D., & H. Canal Co.	89,194	2,835,378	95,628	2,563,135
Penna. RR.	56 134	2,431,288	59 984	2,505,780
Penna. Coal Co.	38,581	1,074,152	37,410	1,066.720
Penna. Canal Co.		343,700	14,248	341,182
Total	779,093	24,409,294	776,082	23,606,691
Increase	3,011	808,603		
Decrease				

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production

Production for corresponding period :

1881	22.305,590	1883	24,184,621
1882	23,058,933	1884	24,184,012

The Norfolk & Western Railroad Company reports shipments of Pocahontas Flat-Top coal for the week ended October 16th, 1886, and year from January 1st, as follows, tons of 2000 pounds : 1886, week, 18,492 ; year, 675,020 ; 1885, week, 15.517 ; year, 454,444. Increase, 1886, week, 2975 ; increase, year. 220,576.

Production Bituminous Coal for week ended October 16th, and year from January 1st :

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Phila. & Erie RR.	44	7.908	85	21,330
*Cumberland, Md.	70,700	1,899,985	48,692	2,181,881
Barclay, Pa.	3,292	148,373	4,125	188,184
Broad Top, Pa.				
H. & Broad Top RR.	7,271	297,431	4.354	123,422
East Broad Top				
Clearfield Region, Pa.				
Snow Shoe	2,664	84,340	3,060	114,654
Karthaus (Keating)	3,682	109,188	3 339	99,446
Tyrone & Clearfield	48,778	1,670,391	62,869	2,291,489
Alleghany Region, Pa.				
Gallitzin & Mountain	14,353	534,071	12,132	413,875
Total	150,784	4,751,687	138,656	5,434,281

* Tons of 2240 lbs.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.				
West Penn RR.	5,872	255,490	3,230	175,595
SouthwestPenn. RR.	1,555	131,164	1,348	78,410
Pennsylvania RR.	6 983	217,592	8,109	174.114
Westmoreland Region, Pa.				
Pennsylvania RR.	32,568	948,808	43,356	874,323
Monongahela Region, Pa.				
Pennsylvania RR.	5,728	369,910	4,874	215,548
Total	52,706	1,862,964	60,917	1,517.990
Grand total	203,490	6,614,651	199,573	6,952,271

Production of Coke on line of Pennsylvania RR. for week ended October 16th, and year from January 1st : Tons of 2000 pounds.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Alleghany Region.	4 480	146,903	3,942	145,517
West Penn. RR.	2,387	84.191	1,597	40,656
Southwest Penn. RR	52,894	2,069,841	37,001	1,428,921
Penn. & W. Region	6,284	256 523	3,457	184,940
Monongahela	2,577	111,183	1,716	74,845
Pittsburg Region		17		
Snow-Shoe	494	20,990	1,330	16,352
Total	69,116	2,689,646	49,643	1,891,231

Anthracite.

Messrs. Potts and Harris, of the allotment committee, met in this city yesterday, and concluded that the demands of the trade warranted an increase of the allotment for October from 3,250,000 to 3,500,000 tons. At the same time, the allotment for November was fixed at 3,250,000 tons. The latter, however, is subject to the precedent established in increasing this month's output, and from all appearances the allotment will be increased, especially if cold weather sets in soon.

A further evidence of a large demand for coal is indicated in the official statistics of production, etc., for September. These show that the market absorbed 146,472 tons more than the allotment, and 130,753 tons of stock coal. The following are the complete figures :

Mr. John H. Jones, official accountant, furnishes the following statement of anthracite coal tonnage for the month of September, 1886, compared with the same period last year. This statement includes the entire production of anthracite coal, excepting that consumed by employés, and for steam and heating purposes about the mines :

Companies.	Sept., 1886.	Sept., 1885.	Difference.
Phila. & Reading RR.	1,084.257	1,166.062	D. 81.805
Lehigh Valley RR.	533,112	651,033	D. 117,921
Del., Lack. & West. RR.	452,371	524,016	D. 71,645
Del. & Hud. Canal Co.	292,832	359,962	D. 67,131
Pennsylvania RR	322,285	331,182	D. 8,897
Pennsylvania Coal Co.	155,751	161,154	D. 5,403
N. Y., L. E. & W. RR.	55,864	65,774	D. 9.910
Total	2,896,472	3,259,183	D. 362,711

Companies.	For Year 1886	For Year 1885.	Difference.
Phila. & Reading RR.	8,110,890	8,133,291	D. 22,392
Lehigh Valley RR.	4,293,960	4,117,110	I. 176.850
Del., Lack. & West. RR	3,615,260	3,428.492	I. 186.768
Del. & Hud. Canal Co.	2,494,245	2.211,416	I. 282,829
Pennsylvania RR.	2,521,884	2,442,178	I. 79,706
Pennsylvania Coal Co.	974,566	1,012,148	D 37,582
N. Y., L. E. & W RR.	524,383	440,787	I. 83,596
Total	22,535,197	21,785,422	I. 749,775

The stock of coal on hand at tide-water shipping points, September 30th, 1886, was 518,306 tons ; on August 31st, 1886, 649,059 tons ; decrease, 130,753 tons.

The trade in this market, owing to the mild weather, has not been quite what was expected ; still the demand from the line and Western markets makes up for this, and coal generally may be said to be scarce except for stove and chestnut sizes, the former being slower than the latter. We hear of an occasional cargo of stove at less than net circular price, but the quantity that is thus obtainable is very small ; and the first week of cold weather will undoubtedly make that size quite active.

It is uncertain when the next advance in prices will be made, though we think that a further one of moderate proportions may be expected.

The companies can afford to keep prices at their present level for the present. It is true, the profit on mining is still not large ; but railroad freights are very heavy, and should be reduced for the benefit of the mines.

The trade is not much disturbed by the threatened proceedings of the Attorney-General of Pennsylvania against the coal combination. A similar political movement was made in this State some years ago, and after taking evidence, was never heard of again. We think it will be a very difficult matter to prove that the officers of the companies have done more than meet for an interchange of views on the requirements of the trade and to determine what prices could be obtained according to the condition of the trade. The press has taken the liberty of calling "an understanding among gentlemen" a combination, and an *estimate* of the requirements of a particular month a curtailment or an allotment.

Mr. Frederick P. Moore has been appointed a coal agent of the New York, Susquehanna & Western Railroad, as successor to Mr. Lloyd Bamford, deceased.

Bituminous.

Cars are still scarce, and coal is not in abundant supply. Prices are better. Fair coal is said to be worth $3.15@$3.20 alongside, while the better classes bring higher prices still.

Buffalo. Oct. 21.

[From our Special Correspondent.]

The coal market, both for anthracite and bituminous, is without new features. Prices are unchanged and business up to the average for the season of the year. There is a slight improvement in supply of railroad cars, and hence the receipts have been more liberal and shipping orders to interior points more adequately filled.

Orders for natural gas fuel are coming in very slowly ; reason, price too high.

Coke is steady at unvaried figures. Dealers report fair average trade.

Manufacturing establishments here are all busy. Profits said to be light, but, under all circumstances, apparently satisfactory.

It is currently reported that within fourteen days the Pennsylvania Attorney-General will show his hand in regard to the so-called "anthracite coal combination." Every thing is in a forward state to warrant the beginning of proceedings under certain laws on the statute-book.

The deficiency of coal-cars is still complained of, which is very annoying, to say the least, in view of the demand of the trade, for immediate requirements.

The following special dispatch appeared in a local newspaper on the 18th inst. : The Cleveland Coal Exchange had a stormy meeting to-night. Some days ago, the Rhodes-Beidler Company, about the largest coal dealer, was fined $200 for selling below pool rates, but the fine was not paid. When the combination raised the price of anthracite 25 cents a ton, the Rhodes-Beidler Company continued to sell at the old price. To-night, the Exchange voted to reduce the pool rate to the old prices until the independent company should be frozen out. Letters were read from the coal operators pledging themselves not to sell the Rhodes-Beidler Company another ton of coal. On the other hand, this company claims to have all the coal on hand that it is likely to require during the season, and asserts that it may take the notion to go another notch below the pool rate.

Lake freights on coal opened dull, with a better supply for shipment. On Monday, carriers wanted an advance of 10 cents to Chicago and Milwaukee, but it was Tuesday afternoon before those figures ruled. Yesterday and to-day, vessels were scarce and coal comparatively plenty. This state of things caused a lively call for tonnage, and, besides chartering many craft to arrive, there was still an active inquiry. Vessel owners anticipate a further advance for the rest of the season.

The severe storm that prevailed here, and on all the lakes, at the close of last week, was disastrous to many vessels ; but singular to relate, not a coal cargo was lost, as far as heard from. The sea-wall here was partially destroyed and many houses entirely destroyed ; besides car tracks torn up and trestles damaged. It was a sad picture of desolation that met the eye of the spectator the morning following the sixty-three miles an hour blow of the night before.

The coal shipments by lake Westward from October 14th to 20th, both days inclusive, were 35,450 net tons ; namely, 17,590 to Chicago, 8210 to Milwaukee, 2800 to Duluth, 1800 to Detroit, 2350 to Toledo, 650 to Sheboygan, 1050 to Saginaw, 450 to Racine, 400 to Ashland, and 150 to Hancock, making a total for

the season of 1,239,071 net tons (including vessels cleared from Tonawanda, but their destination not stated). The engagements and rates reported were as follows: 90c.@$1 to Chicago, Owen Sound, and Milwaukee; 90@95c. and on contract to Duluth; $1 to Sheboygan and Racine; 85c. to Ashland and Marquette; 80c. to Escanaba; 65c. to Superior City; 90c. to Green Bay; 50c. to Saginaw; and 20c. to Detroit and Toledo.

The coal charters by canal reported during the past week were as follows: 2 loads to Troy, $1.25 net ton, free in and out; and 1 load to Syracuse, 75c. gross ton, free in and out; closing with light inquiry. The nominal rates to New York are $1.75, and to Albany and Troy $1.25 net ton, captain to pay loading and unloading.

Boston. Oct. 20.

[From our Special Correspondent.]

The anthracite coal market remains dull. Quotations are nominally unchanged, but the feeling is a trifle easier. The amount of coal offered by individual operators is not sufficient to affect the general market as yet. We have not yet had the cold snap that is needed to give a rush of activity to the retail trade. There are therefore good stocks of coal on hand, but dealers are not thought to have bought ahead to any extent. The dullness at this port seems to be the exception to the general rule, judging by the reports from other cities.

In bituminous coal, the movement is still moderate at $2.10@$2.20 f.o.b. There are strong hopes of an advance for next season, and for this reason jobbers refuse to consider propositions to contract now for next season's delivery at current rates.

The event that has absorbed most attention in the coal market of late has been the annual meeting in this city of the National Association of Coastwise Vessel Owners. It appeared that the Association contains 1000 vessels, having a carrying capacity of 63,182 tons. The meeting showed much difference of opinion; but a working majority kept matters in control. The two important matters decided upon were the refusal to permit rebates; and secondly, the granting of the option to small vessels (400 tons or less) of requiring only 100 tons a day to be discharged by the consignee, instead of 150 tons, as heretofore. The consignee may also be allowed eight cents per ton demurrage instead of six cents. The expediency of advancing rates to Somerset and New Bedford five cents per ton was referred to the commission with full power. Practically the same board of officers was re-elected. The following rates were adopted to ports not previously rated: To wharves in Lynn, Salem, Danversport, and Plymouth, with less than 12 feet of water, 10 cents above Boston rate; to Saco, 10 cents over Boston rates and tounage; to Kennebec ports, Boston rates. No freight is to be taken to any port east of Cape Cod at less than Boston rates.

The next meeting will be at the Association rooms in New York, November 10th.

Notwithstanding the success of the Association thus far, the barge system is cutting rates more and more. L. G. Burnham, one of the leading retailers in Boston, is running a line of barges on his own account, and proposes to double its capacity, having just bought the steamer Enchantress. Mr. C. A. Campbell, a Boston wholesaler, is interested with Mr. Burnham in this matter. The two steamers on this line not only tow barges but carry themselves 3000 tons. All this in addition to the Boston Tow-Boat Company. From 36 to 41 hours is employed in towing from New York to Boston.

We quote rates exclusive of discharging:

New York, 80@90c.; Philadelphia, $1@$1.05; Baltimore, $1.10@$1.15; Newport News and Norfolk, $1.05@$1.10; Richmond, $1.10@$1.15; Cape Breton, $1.85@$2; Bay of Fundy, $1.60.

Retail trade is better but still slow. Prices are maintained.

We quote delivered prices:

White ash, furnace and egg	$5.00@$5.25
" stove and nut	5.25@ 5.50
Lehigh furnace, egg and stove	5.50@ 5.75
" nut	5.50@ 6.00
Shamokin egg	5.50@ 6.00
" stove	5.75@ 6.00
Lorberry egg and stove	@ 6.50
Franklin egg and stove	@ 7 00

Pittsburg. Oct. 21.

[From our Special Correspondent.]

The coal market since our last has presented nothing new or important. The low stage of water continues, so that navigation is still suspended, owing to the want of empty craft. Mining in the Monongahela continues almost suspended. The amount of coal loaded ready for shipment is large. The mining price remains at 2½c. a bushel. The amount of coal in the Kanawha ready for shipment the first rise is 3,040,000 bushels. Present rates: River, f.o.b., 3½@4½c.; Railroad, 4¼@4¾c.

Connellsville Coke.—Demand active. The greatest drawback is the want of cars. Quotations: Blast-Furnace, $1.50 f.o.b. cars at ovens; Foundry, $1.75; Crushed, $2.25.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, Oct. 22.

During the past week, the mining market has displayed considerable activity, and there has been a tendency in some instances to higher prices. On the whole, however, it remains firm. The total transactions were 69,382 shares, showing an increase of 2792 shares, as compared with the preceding week.

The decision to abandon work on the lower levels of the Comstock has caused considerable excitement in many quarters; but prices have not dropped as was expected, but this week have advanced in almost all instances, and much speculation continues in the different stocks. The latest advices are, that it has been definitely decided to completely close down the Combination shaft. Consolidated California & Virginia has experienced a small boom, the price going from $2.85@$7.75, some 5462 shares changing hands. Hale & Norcross was quiet at from $1.10@$1.20. Sierra Nevada was firm at from 73@95c. Savage, at from $2.50@$2.55. Yellow Jacket, from 96c.@$1.25. Union Consolidated, from 50 to 72c.; and Sutro Tunnel, from 7@11c. The Tuscarora stocks, Navajo and Belle Isle, received much attention. The former advanced from 80c. to $1, and the latter declined from 40@35c. North Belle Isle was firm at $3.50. It is reported that some rich ore has been found.

A downward movement has occurred in Bodie and Bulwer; the former declining from $3@$2.60, and the latter, from $2@$1.60; the sales were large. Mono was in sympathy with them, going from $2.90@$2.50. A few sales of Plymouth were made at from $16.38@$16.25.

There is nothing new or interesting to report relating to the Colorado stocks. The largest business was done in Little Pittsburg, Leadville, and Chrysolite, these selling, respectively, at from 61@50c.; 47@30c.; and 53@51c. Iron Silver showed sales at $2.15. Freeland, at $1.30. Bassick, at 13c. Lacrosse, at 8c.

An increased business was done in Homestake, with lower prices, going from $19@$19.75, and closing at $18. Father de Smet was quiet at 72c. Caledonia, at $1.30.

The usual monthly dividend of $75,000 has been declared by the Ontario, which has now the grand record of $7,775,000 paid in dividends. The price stands at $25. Horn-Silver is still lower, ruling at from $2@$1.75.

Rappahannock, from which good reports continue to be received, is selling at from 8@10c.

Coal Stocks.

Rumors of a large assessment on Jersey Central stock, a foreclosure of the road, and many other things of a similar nature, caused a heavy decline in the price of the stock. This affected the entire market unfavorably, and especially the coal stocks. Reading, however, owing to its intimate relations with Jersey Central, suffered most. The dealings in Lackawanna aggregated 2?6,196 shares at $143½@$139½, closing at $140¼. Delaware & Hudson ranged between $108 and $105½, and closed at $105⅞. Reading, with sales of 207,490 shares at $37@33⅛, closed at $34⅛. Jersey Central ranged between $62½ and $48⅛, and closed at $48¾, with dealings of 383,686 shares.

We have good reason for thinking that holders of Maryland Coal Company stock are likely to get higher prices for it soon.

The prospects for the Colorado Coal and Iron Company seem to have considerably improved.

Meetings.

The annual and special meetings of the following companies will be held at the times mentioned:

Arizona Consolidated Mill and Mining Company, Metropolitan Hotel, New York City, October 23d, at twelve o'clock M., special meeting to consider the affairs of the company, a statement of which will be presented.

Marcus Gold Mining Company, No. 19 New street, Room 46, New York City, October 26th, four o'clock P.M.

Nacoochee Gold Mining Company, No. 64 Broadway, New York City, October 28th, at three o'clock P.M.

Union Copper, Land, and Mining Company, No. 29 State street, Boston, Mass., November 29th, at half-past ten o'clock A.M., to consider the question of authorizing the directors of the company to sell and convey any or all of the real estate in the State of Michigan.

Dividends.

Adams Mining Company, of Colorado, paid, on the 21st inst., dividend No. 32, of ten cents a share, or $15,000, and an extra dividend, No. 33, of the same amount, a total of $30,000.

Amy & Silversmith Consolidated Mining Company, of Montana, has declared a dividend, No. 4, of ten cents a share, or $34,141.90, payable on the 20th inst. at Butte.

Anchor Oil Company has declared the regular monthly dividend of one per cent on the capital stock of this company, payable on the 30th inst., at No. 18 Broadway, New York City.

Iron Hill Mining Company, of Dakota, paid dividend No. 8, of five cents a share, or $12,500, on the 20th inst., at the office of the transfer-agent, E. R. Grant, No. 57 Broadway, New York City.

Leadville Consolidated Mining Company, of Colorado, has declared dividend No. 13, of five cents a share, or $20,000, payable on the 25th inst., at No. 1 Broadway, New York City.

Martin White Mining Company, of Nevada, has declared dividend No. 4, of twenty-five cents a share, on the shares outstanding, payable immediately at San Francisco.

Ontario Silver Mining Company, of Utah, has declared dividend No. 125, of fifty cents a share, or $95,000, payable on the 30th inst., at Messrs. Lounsbery & Co.'s, No. 15 Broad street.

Philadelphia Company (Natural Gas), of Pennsylvania, has declared a dividend of one per cent, payabl on the 20th inst., at Pittsburg.

Southwest Virginia Improvement Company, of Virginia, has declared a dividend of four per cent on the capital stock, out of the earnings of the past six months, payable to stockholders of record, October 19th; to others, November 1st, at No. 224 South Third street, Philadelphia, Pa.

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Andes, Nev	30	Sept. 15	Oct. 21	Nov. 10	.25
Baker Divide, Cal.	12	Sept. 24	Oct. 25	Nov. 17	.25
Bed Rock, Ariz.	2	Sept. 13	Oct. 18	Nov 8	.10
Best & Belcher, Nev.	35	Sept. 29	Nov. 4	Nov. 24	.50
Bullion, Nev.	31	Aug. 31	Oct. 5	Oct. 26	.30
Eureka, Dak.	6	Sept. 27	Nov. 13	Dec. 14	.02½
Exchequer, Nev.	....	Oct. 18	.....	.....	.20
Golden Fleece, Cal.	6	Sept. 18	Oct. 23	Nov. 13	15.00
Golden Jacket, Nev.	2	Sept. 1	Oct. 14	Nov. 4	.10
Gould & Curry, Nev.	54	Sept. 28	Nov. 3	Nov. 24	.50
Hale & Norcross, Nev	92	Oct. 8	Nov. 11	Nov. 30	.40
Homeward Bo'd, Dak	2	Aug. 6	Oct. 4	Oct. 25	⅛
Huron Mt., Mich.	....	Oct. 11	Nov. 11	Nov. 11	.05
Lockport, Dak.	2	Sept. 16	Oct. 16	Nov. 2	¼
Lower Level, Dak.	1	July 13	Oct. 19	*No. 10	.02½
Mayflower Gravel, Cal	32	Sept. 6	Oct. 15	Nov. 12	.25
Minna, Dak	2	Sept. 7	Oct 8	Oct. 25	¼
New Discovery, Dak.	....	Sept. 21	Oct. 22	*No. 12	¼
Pneumatic, Cal.	1	Oct. 5	Nov. 18	Dec. 9	.12½
Pocahontas, Dak.	2	Sept. 27	Oct 27	*No. 27	.01
Potosi, Nev.	25	Aug. 31	Oct. 5	Oct. 26	.30
Potosi, Dak.	1	Sept. 20	Oct. 25	Nov. 15	¼
Ross-Hannibal, Dak	1	Sept. 4	Oct. 9	Oct. 26	.01
Ruby Hill, Nev.	12	Sept. 18	Oct. 19	Nov. 18	.01
Seabury-Calkins, Dak	4	Sept. 7	Oct. 12	Oct. 30	.02
Sierra Nevada, Nev.	86	Sept. 11	Oct. 13	Nov. 1	.25
Silver Lining, Nev.	2	Sept. 14	Oct. 18	Nov. 5	.10
Silver Star, Dak.	1	July 8	*Oct. 11	*Oct. 27	¼
Tiewaukie, Utah.	....	Oct. 8	Nov. 26	Dec. 13	.25
Union, Utah.	....	Aug. 28	Oct. 25	Nov. 11	⅛
West Galena, Dak.	5	June 5	*Oct. 30	*No. 20	⅛

* The delinquent day and the day of sale were postponed to dates given above.

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, Oct. 21.

The market this week has shown a fair degree of activity, and prices generally have had an upward tendency. There is a good demand for the dividend paying copper stocks, and orders to buy are more

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value	Assessments. Total levied to date.	Assessments. Date and amount per share of last.	Dividends. Total paid to date.	Dividends. Date and amount per share of last.
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*		$502,500	Oct. 1886 30
2	Alice, s. C	Mont	10,000,000	400,000	25	*		750,000	Sept 1886 .06¾
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*		339,000	Oct. 1883 .05
4	Amy & Silversmith, s.	Mon.		311,419				136,538	Oct 1886 .10
5	Atlantic, c	Mich	1,000,000	40,000	25	$240,000	Apl. 1875 $1.00	320,000	Jan. 1886 $1.00
6	Argenta, s	Nev.	10,000,000	100,000	100	295,000	July 1885 .10	40,000	Feb. 1880 .20
7	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*		60,000	Nov 1880 .10
8	Bassick, G. S	Colo.	10,000,000	100,000	10	*		400,000	Mar. 1884 1.00
9	Belle Isle, s	Nev.	10,000,000	100,000	100	140,000	May 1886 .10	300,000	Dec. 1879 .25
10	Belcher, G. S	Nev.	10,000,000	100,000	100	2,217,335	ec. 1885 30	15,397,000	Apl 1876 1.00
11	Bellevue Idaho, s. L	Idah.	1,250,000	125,000	10	26,250	Dec. 1883 10	125,000	Aug 1886 .10
12	Big B'nd Hydraulic, G	Dak.	1,000,000	200,000	5	*		198,000	Oct. 1886 .03
13	Black Bear, G	Cal.	3,000,000	30,000	100	22,500	Dec. 1884 .25	885,000	May 1883 .20
14	Bodie Con., G. S	al.	10,000,000	100,000	100	324,990	Jun. 1886 .50	1,002,572	Apl. 1885 .50
15	Bonanza Developm't	C & M	3,000,000	300,000	10			135,000	Oct. 1882 .15
16	Bonanza K'g, Cons. S.	Cal.	1,000,000	100,000	10	*		185,000	Feb. 1885 .10
17	Boston & Mont, G	Mont	2, 0 ,00	200,000	10	*		520,000	Jun 1886 .15
18	Breece, s	Colo.	5,000,000	200,000	25	*		2,000	Feb. 1880 .01
19	Brooklyn Lead, L. S	Utah	500,000	50,000	10			102,000	Sept 1886 .05
20	Bulw r, G	Cal	1,000,000	100,000	100	40,000	Oct. 1885 .20	175,000	Jan. 1884 .10
21	Caledonia, G	Dak	1 ,000,000	100,000	100	505 000	May 1885 .15	40,000	Feb. 1886 .10
22	Calumet & Hecla, C	Mich	2,500, 00	100,00	25	1,200,000		27,850,000	Jun. 1886 5.00
23	Carbonate Hill, s. L	Colo.	2,000,000	200,000	10	*		80,000	Apl. 1884 .05
24	Carbon Con., S	Colo.	1,500,000	150,000	10	*		50,000	Mch 1880 .10
25	Castle Creek, G	Idah.	100 0 0	100,000	1			51,000	Oct. 1883 .03
26	Cataipa, s L	Colo.	3,000,000	3 0,000	10	*		270,000	May. 1884 .10
27	Central, C	Mich	500.000	20,000	25	100,000	Sept 1861 .06	1,780,000	Jan. 1886 2.00
28	Christy, s	Utah	10,000,000	100,000	100			10,000	Jun. 1885 .10
29	Chrysolite, s. L	Colo.	10,000,000	200,000	50	*		1,650,000	Dec. 1884 .25
30	Colorado Central, s. L	Colo.	2,750,000	275,000	10	*		143,75	Oct. 1886 .05
31	Cons Cal & Va., G. S.	Nev..	21,600,000	216,000	100	108,000	Jan. 1 85 .20	64,800	Feb 1886 .30
32	Con. Gold Mining, G.	Ga...	500,000	1 0,000	5	*		108,000	Nov. 1883 .02
33	Contention, S	Ariz.	12,500,000	250,0 0	50			†2,587,000	Dec. 1884 .25
34	Crescent, s. L. G	Utah	15,000,000	600,000	25	*		210,000	Aug. 1886 .05
35	Crown Point, G. S	Nev.	10,000,000	100,000	100	2,675,000	Feb. 1882 .25	11,588,000	Jan. 1875 2.00
36	Deadwood-Terra, G	Dak.	5,0 0,000	200, 00	25			1900,00	Jan. 1886 .10
37	Derbec B. Grav., G. S	Cal.	10,000,000	10 ,000	100	90,000	Dec. 1881 .10	140,000	Jun 1886 .10
38	Dunkin, s. L	Colo.	5,000,0 0	200 000	25	*		220,000	Sept 1884 .05
39	Elkhorn, G. S	Mont	1,000,000	100,000	10	50,000	July 1883 .50	140,000	Sept 1886 .50
40	Eureka Con., G. S. L.	Nev..	5,000,0 0	50,000	100	500,000	July 1886 1.00	4,817,500	July 1882 .25
41	Evening Star, s. L	Colo.	500,0 0	50,000	10	*		1,400,000	Nov 1883 .50
42	Excelsior, G	Cal..	10,000,000	100,000	100	560,000	Sept 1885 1 00	875,000	Oct. 1880 .25
43	Father de Smet, G	Dak.	10,000, 00	100 000	100	200,000	Nov 1878 1.00	1,125,000	Dec 1885 .20
44	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun 1871	520,000	Jun. 1886 1.00
45	Freeland, G S. C	Colo	5,000,000	200,000	25	*		190,000	July 1886 .10
46	Fresno Enterprise, G	Cal..	5,000,000	100,000	50		Mch 1883 .10	110,000	July 1882 .10
47	Gould & Curry, G. S	Nev	10,800,000	108,000	100	4,055,000	Sept 1886 .50	3,826,000	Oct 1870 10.00
48	Grand Central, S	Ariz.	1,000,000	10 ,000	10			625,000	Dec. 1882 .25
49	Grand Prize, S	Nev..	10,0 0,000	100,00	100	570, 0	Apl. 1886 .50	495,000	Mar. 1881 .25
50	Granite, S	Colo	125,000	25, 00	1			6,250	May 1883 .01
51	Granite Mountain, S.	Mont	10,000,0 0	400,000	25			1,400 000	Sep 1886 .25
52	Green Mountain, G	Cal..	1,25 ,000	125,000	10	*		212,000	Nov. 1881 .07½
53	Hale & Norcross, G. S	Nev..	11,2 0,000	112,000	100	4,971,800	Oct. 1886 .40	1,598,000	Apl 1871 5.00
54	Hall-Anderson, G	N. S.	150,000	150,000	1			7,000	Jan. 1882 .05
55	Hecla Con., S. G. L. C	Mont	1,5 0,000	30,000	50			1,032,000	July 1886 .50
56	Hel's Mg & Red, G. S. L	Mont	3,315,0 0	663,000	5	*		197,97	July 1886 .06
57	Holmes, S	Nev.	10,000, 00	100,000	100	300,000	Sept 1885 10	75,000	Apl. 1886 .25
58	Holyoke, G	Idah.	20 ,000	200,000	1			27,000	Feb. 1883 .10
59	Homestake, G	Dak.	12,500,0 0	125,000	100	200,000	July 1878 1.00	3,618,750	Oct. 1886 .40
60	Honorine, s. L	Utah	5 0,000	250,000	2	25,000	Jun. 1883	75,000	Sept 1886 .05
61	Hope, S	Mont	400,000	8,000	50	*		158,252	Oct. 1884 1.50
62	Horn-Silver, S. L	Utah	10,000,0 0	400,000	25	*		4,000,000	Nov. 1884 .50
63	Idaho, G	Cal..	310,000	3,100	100			3,750,000	Jun. 1886 7.50
64	Ideal, s L	Colo.	1,500,000	150,000	10			15,000	Oct. 1886 .05
65	Independence, S	Nev..	1 ,000, 00	100,000	10	320,000	Aug. 1885 .20	225,000	Sept 1879 .25
66	Indian Queen, S	Nev..	250,000	125,000	2			368,750	July 1883 .03
67	Inyo, G	Cal..	500,000	100,000	5	*		45,000	Apl. 1882 .05
68	Iron Hill, S	Dak.	2,500,000	25 ,000	50	82,500	Oct. 1885	112,500	Oct. 1886 .05
69	Iron-Silver, S. L	Colo	10,000,0 0	500,000	50	*		1,700,000	July 1886 .20
70	Jackson, G. S	Nev.	5,000, 00	50,000	100	10,000	Nov. 1880 .20	40,000	Jun. 1886 .10
71	Jocuistita, S	Mex.	2,500,000	250,000	10			1,20 ,000	Feb. 1885 .50
72	Kentuck	Nev..	3,000, 00	30,000	100	342,000	Nov 1881 .30	1,350,000	July 1884 .10
73	La Plata, S. L	Colo.	2,0 0,000	200,000	10	*		610,000	Sept 1882 .30
74	Leadville Cons., S. L.	Colo	4,0 0,000	400,000	10	*		410,000	Oct 1886 .05
75	Lexington, G. S	Mont	4,000,000	40,000	100	*		565,000	Jan 1885 2.00
76	Little Chief, S. L	Colo	10,000,00	2 0,000	50	*		780,000	Mch 1885 .10
77	Little Pittsburg, S. L	Colo.	20,000,0 0	200,000	100	*		1,050,000	Meh. 1880 .50
78	Manhattan, S	Nev.	5,000,000	50,000	100	150,000	July 1879 1.00	437,500	Feb 1886 .25
79	Marguerite, G	Cal.	500, 00	25,000	20			18.750	Oct. 1882 .25
80	Marion Bullion, G	N.C	500,000					15.000	Jan. 1886
81	Martin White, S	Nev.	10,000,0 0	100,000	100	1,15 ,00	Mar. 1886 25	115.000	Oct. 1886 .25
82	Minnesota, C	Mich	1,0 0,000	40,0 0	25	420,0 0	Apl. 1886 1 00	1,825,000	Mar. 1876
83	Mono, G	Colo.	5,000,0 0	5 ,000	100	56 ,00	Jun. 1885 .50	12,50	Mar 1886 .25
84	Montana, Lt. G. S.	Mont	3,300,0 0	330,000	10	*		630,300	July 1886 .62
85	Morning Star, S. L	Colo.	1,000,0 0	100,000	10			625,000	Sept 1886 .25
86	Mottto, S. G	Mont	2,000,000	400,000	5	*		200,000	Aug 1886 .07½
87	Mount Pleasant, G	Cal.	150,000	150,000	1	*		105.000	Mar. 1884 .10
88	Mt. Diablo, S	Nev	5,000,0 0	50,000	100	137,500	Jun. 1880 2.00	80,000	July 1885 .20
89	Napa, G	Cal..	700,000	100,000	7			200,000	Jan. 1883 .10
90	Navajo, G. S	Nev..	10,0 0,000	100,000	100	395,000	Mar. 1886 25	325,000	Feb. 1885 .25
91	N. Hoover Hill, G. S.	N. C.	300,000	120,000	2½	*		30,000	Dec. 1885 .06¾
92	New York Hill, G	Cal..	5,000,0 0	50,000	100	62,500	Oct 1885 .15	215,000	Aug 1882 .10
93	Northern Belle, S	Nev..	5,0 0,000	50,000	100	425,000	Jan. 1884 8.30	2,400,000	Apl. 1883 .50
94	North Belle Isle, S.	Nev..	10,000,000	100,000	100	150,000	Mar 1886 .20	31,000	Aug. 1881 .15
95	Ontario, S. L	Utah	15,000,000	150,000	100			7,775,000	Oct. 1886 .50
96	Ophir, G. S	Nev..	10,0 0,000	100,000	10	3,957,800	Jun. 1886 .25	1,595,000	July 1882 1.00
97	Original, S. C	Mont	1,5 0,000	60,000	25	*		114.000	Oct. 1884 .05
98	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl. 1876 1.60	972,500	Sept 1884 .25
99	Oxford, G	N. S.	125,000	125,000	1	*		34,5 0	Oct. 1885 .02
100	Paradise Valley, G. S	Nev.	10, 0,000	100,000	100	47,000	Mar. 1882 .15	130,000	Sept. 1886 .25
101	Pleasant Valley, G. S.	Cal.	10, 00,000	100,000	100	40,000	Mar. 1884 .10	30,000	Dec. 1882 .05
102	Platau, G. S. C. L	Colo.	2,0 0,000	200,000	10	*		20,000	Feb. 1886 .10
103	Plymouth Con., G	Cal..	5,000,000	100, 00	50	*		1,800,000	Nov. 1886 .25
104	Prussian, S. L	Colo	1,500,000	150,000	10			132,000	Jan. 1883 .10
105	Quicksilver, pref., Q	Cal..	4,3 0,000	43,00	100			785,150	Aug. 1886 1.25
106	" com., Q	Cal	5,700,0 0	57,000	100			151,00	July 1882 .40
107	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec. 1863	4,410,000	July 1886 2.00
108	Richmond, S. L	Nev..	1,350,000	54,000	25	*		4,177,587	May 1886 1.25
109	Ridge, C	Mich.	5 0,000	20,000	25	220,000	Mar 1886 .50	10 ,000	Feb. 1880 .50
110	Rising Sun, S	Dak.	750,000	150,000	5	*		32,000	May 1881 .07½
111	Robinson Con., S. L.	Colo.	10, 0,000	200,000	50	*		585,000	Mar. 1886 .05
112	Robert E. Lee, S. L	Colo	10,000,00	500,000	20			100,000	Dec. 1882 .10
113	Rooks, G	Vt.	500,000	50,000	10	*		61,000	Apr 1885 .30
114	San Francisco, C	Cal..	5,000,000	50,000	100	45,000	Sept 1880 .50	20,000	Feb. 1883 .05
115	Savage, S	Nev..	11,20 ,00	112,0 0	100	6,156,000	Jun. 1886 .50	4,460,000	July 1869 3.00
116	Security L Mg, Mfg.	Colo.	1,0 0,000	100,000	10	*		50,000	July 1884
117	Snoshone, G	Idah.	150,000	150,000	1			7,500	Apl. 1883 .01
118	Sierra Buttes, G	Cal..	225,000	22,500	10			1,430,639	Apl. 1886 .25
119	Sierra Grande, S	N. M.	2,5 0,000	500,000	5			860,000	Sept 1884 .25
120	Sierra Nevada, G. S.	Nev.	10,000,000	100,000	100	5,972,698	Sept 1886 .25	102,000	Jan. 1881 1.00
121	Silver Cord, G. S. L.	Colo.	5,0 0,000	500,000	10			225,000	Nov. 1883 .25
122	Silver King, S	Ariz.	10,000, 00	100,000	100			1,750,000	Aug. 1884 .25
123	Silverton, G S	Colo.	2, 00,000	200,000	10	*		64,000	Aug 1886 .02
124	Small Hopes Cons., S.	Colo.	5,000,000	250,000	20	*		2,325,0 0	Sept 1886 .20
125	Smuggler, S. L	Colo.	600,000	60,000	10			66,700	Aug. 1883 .25
126	Socorro, C	N. M.	250,000	5,000	100			4,000	Mch 1882 .00¾
127	South Yuba, G	Cal..	2,000,000	0 ,000	50	*		150,000	Oct. 1881 .75
128	Spring Valley, G	Cal..	2 0,0 0	2 ,000	1	*		50,0 0	Jan. 1881 .25
129	Sranlard, G. S	Cal..	10 00,00	1 ,0 0	100	25,000	Oct. 1884 .25	4,425,000	Mar. 1884 .25
130	Stormont, S	Utah	500,0 0	500, 00	1	*		155,000	Nov. 1881 .05
131	St. Joseph, L	Mo..	1,1 0,00	110,000	10	*		562,000	July 1886 .60
132	Syndicate, G	Cal..	10,0 0,000	130,000	100	38,723	July 1882 .15	48,3 8	Sept 1885 .10
133	Tip Top, S	Ariz	10,000,000	100,0 0	100	250,000	Sept 1883 .25	100,00	Nov. 1881 .20
134	Tombstone, G. S. L.	Ariz	12,500,000	500,00	25	*		1,250,000	Apl. 1882 .10
135	True Fissure, G. S. L.	Utah	1,500,000	15 ,000	10	*		75,000	Jun. 1883 .15
136	United Verde, C	Ariz	3,0 0,000	300,000	10	*		97,500	Feb. 1884 .20
137	Valeacia, M	N. M.	15 ,0 0	1,500	10	*		41,25	Apl 1886 2.50
138	Virgina, S	Ariz.	5,0 0,000	200,000	25	*		140,000	Apl. 1886 .10
139	Yankee Girl	Colo.	2,50 ,000	250,000	10			1,012,500	Aug. 1886 .10
140	Yellow Jacket, G. S.	Nev.	12,00 ,00	12 ,0 0	100	5,44 ,00	Dec. 1845 .75	2,184,000	Aug 1871 1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.
1	Agassiz Cons., S. L.	Colo.	$2,500,000	50,000	$50	*	
2	Albion, S. L	Nev.	15,000,000	150,000	100	$577,000	July 1883 .50
3	Allouez, C	Mich	2,000,000	80,000	25	240,000	Feb. 1884 .50
4	Alpha Con., G. S.	Nev.	3,000,000	30,000	100	430,000	Mar 1886 .50
5	Alta, S	Nev.	10,080,000	100,800	100	1,951,400	Feb. 1886 .25
6	American Flag, S	Colo.	1,250,000	125,000	10	300,000	Jun. 1877 .25
7	Anglo-Montana, Lt.	Mon.	600,000	120,000	5		
8	Appalachian, Lt., G.	N. C.	1,500,000	300,000	5		
9	Aspen Mg. & S, S. L	Colo.	2,000,000	200,000	10		
10	Barcelona, G	Nev.	5,000,000	200,000	25	*	
11	Battle Creek, G	Dak.	5,000,000	200,000	25		
12	Bear Creek	Cal..	300,000	300,000	1		
13	Bechtel Con., G	Cal..	10,000,000	100,000	100	173,500	u. 1883 .10
14	Belvidere	Cal..		60,000		92,000	b. 1882 .15
15	Belmont, S	Nev..	5,000,000	50,000	100	735,000	Apl. 1884 .10
16	Best & Belcher, G. S	Nev.	10,080,000	100,800	100	1,749,590	Sept 1886 .50
17	Big Pittsburg, S. L.	Colo.	20,000,000	200,000	100	*	
18	Black Jack, G	Cal..	250,000	100,000	2½		
19	Bonanza Chief	Mon	1,000,000	1,000,000	1	*	
20	Bondholder	Colo	500,000	200,000	2½		
21	Boston Con., G	Cal..	10,000,000	100,000	100	170,000	Nov 1883 .25
22	Bradshaw, S	Ariz	2,250,000	225,000	10	*	
23	Buckeye Common	Colo.	2,000,000	400,000	5	*	
24	Bull Domingo, S. L.	Colo.	10,000,000	200,000	50	*	
25	Bullion, G. S	Nev	10,000,000	100,000	100	4,600,000	Aug 1885 .30
26	Bye and Bye	Ariz.	1,000,000	100,000	10	*	
27	Calaveras, G	Cal..	500,000	500,000	1	*	
28	Catskill, S	Nev.	1,500,000	300,000	5		
29	Central Arizona, S	Ariz.	10,000,000	100,000	100		
30	Cen Contin'l, G. S. L.	C & A	2,000,000	200,000	10	*	
31	Charles Dickens	Idah	1,250,000	250,000	5		
32	Cherokee, G	Cal..	1,500,000	150,000	10		
33	Chollar, S	Nev..	11,20 ,0 0	112,000	100	1,040,000	Aug. 1886 .50
34	Cinnamon Mt., G. S.	Colo.	750,000	150,000	5		
35	Climax, S. L	Colo.	2,000,000	200,000	10		
36	Colorado No. 2, S	Colo.	100,000	10,000	10		
37	Con. Imperial, G. S.	Nev..	50,000,000	500,000	100	1,100,000	Aug. 1886 10
38	Con. Pacific, G	Cal..	6,000,000	60,000	100	174,000	Feb. 1886 .15
39	Cons Silver, S	Mo..	2,500,000	250,000	10		
40	**Cop. Queen Cons, C	Ariz	1,400 000	140,000	10		
41	Courtlandt	Colo	500,000	50,000	10		
42	Crescent, S. L	Colo.	3,000,000	300,000	10	*	
43	Crocker, S	Ariz	10,000,000	100,000	100	65,000	May 1886 .20
44	Crowell, G	N. C	500,000	500,000	1		
45	Dahlonega, G	Ga...	250,0 0	250,000	1	*	
46	Dandy, S	Colo.	5,000,000	500,000	10		
47	Dardanelles, G	Cal..	1,000,000	100,000	10		
48	Decatur, S	Colo.	1,500,000	300,000	5	*	
49	Denver City, S. L	Colo.	5,000,0 0	500,000	10	*	
50	Denver Gold	Colo.	300,000	60,000	5		
51	Deseret, G S	Utah	500,000	50,000	10	*	
52	Dunderberg, S	Colo	1,500,000	150,000	10	*	
53	Durango, G	Colo.	500,000	500,000	1	*	
54	Durango T	Mex	120,000	1,200	100		
55	Eastern Dev. Co., Lt	N. S.	1,500,000	150,000	10	990,000	Mar. 1886 1.00
56	Elko Con., S	Nev..					Mar 1884 .15
57	Empire Lt., G	Mon	5 0,000	130,000	5		
58	Empire, S	Utah	10,000,000	100,000	100		
59	Enterprise, S. L	Colo.	800,000	80,000	10	*	
60	Eureka Tunnel, S. L	Nev..	10,000,000	100,000	100		
61	Exchequer	Nev	10,000,000	100,000	100	860,000	Oct. 1886 .90
62	Garfield, Lt., G. S	Nev	500,000	100,000	5		
63	Gold Placer, G	Colo.	5,000,000	200,000	25	*	
64	Goodshaw, G	Cal..	10,000,000	100,000	100	229,314	Dec. 1885 .25
65	Grand Belt, C	Tex.	12,000,000	120,000	100	*	
66	Grand Duke	C lo.	800,000	80,000	10		
67	Gregory-Bobtail, G	Colo.	550,000	550,000	1		
68	Gregory Con., G	Mon.	3,000,000	300,000	10	*	
69	Harlem M. & M. Co, G.	Cal..	1,000,000	200,000	5		
70	Head Cent. & Tr. S. G	Ariz.	10,000,000	100,000	100		
71	Hidalgo, S	Mex.	200,000	20,000	10		
72	Highland, C	Mich	500,000	25,000	25		
73	Hortense, S	Colo.	2,000,000	200,000	10		
74	Iroquois, C	Mich	1,250,000	50,000	25		
75	J. D. Reymert	Ariz	10,000,000	100,000	100	*	
76	Julia Cons., G. S	Nev..	11,000,000	110,000	100	1,438,000	Nov 1883 .10
77	Kearsarge, C	Mich	1,250,000	50,000	25	100,000	Apl. 1886 4.00
78	Lacrosse, G	Colo	1 000,000	100,000	10		
79	Lee Basin, S. L	Colo.	5,000,000	500,000	10	*	
80	Leviathan, S	Nev..	10,000,000	100,000	100	330,000	Sept 1882 .25
81	Lucerne, S	Colo.	5,000,000	500,000	10	*	Jan. 1885 .10
82	Mammoth Bar, G	Cal..	10,000,000	100,000	100	50,000	Dec. 1881
83	Mariposa pref., G	Cal..	5,000,000	50,000	100	1,687,500	Feb. 1883 .25
84	" common, G	Cal..	10,000,000	100,000	100	1,975,000	Dec. 1881 .20
85	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Mar 1884 .15
86	Mayflower Gravel	Cal..	1,0 0,000	100,000	100	85,000	Sept 1886 .25
87	Mexican, G. S	Nev	10,000,000	100,800	100	2,565,760	Jun. 1886 .25
88	Mine & Starr, S. L	Colo	1,000,000	200,000	5	*	
89	Miner Boy, G. S. L.	Colo.	5,0 0,000	500,000	10	*	
90	Miller	Nev	5,000,000	200,000	25		
91	Moose Silver, S	Colo	3,000,00	300,000	10	*	
92	Nachoochee, Lt., G	Ga	1,000,000	200,000	5		
93	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*	
94	North Standard, G	Cal..	10,000,000	100,000	100	20,000	Nov
95	Noonday	Cal..	600,000	60,000	10	208,000	Dec. 1881 .10
96	Old Dominion, C	Ariz.	3,000,000	300,000	10		
97	Oriental	Nev..	2,000,000	200,000	10		
98	Oriental & Miller, S	Nev..	10,000,000	400,000	25		
99	Overman, G. S	Nev..	11,520,000	115,200	100	3,702,320	July 1886 .15
100	Parrott, C	Cal..	1,800,000	180,000	10		
101	Park, S	Utah	2,000,000	200,000	10		
102	Peer, S	Ariz	10,0 0,000	100,000	100	125,000	Apl. 1886 .10
103	Peerless, S	Ariz.	10,000,000	100,000	100	275,000	May 1886 .50
104	Potosi, S	Nev..	10,200,000	112,000	100	1,078,400	Aug 1886 .20
105	Quin y	Colo.	3,000,000	300,000	10		
106	Rappahannock, G. S.	Va..	250,000	250,000	1	*	
107	Red Elephant, S	Colo	500,000	500,000	1	*	
108	Robbins, G. S	Colo.	5,000,000	200,000	25	*	
109	Ropes, G. S	Mich	2,000,000	80,000	25	63,200	Mar 1886 .10
110	S.P. & Canon del A. C.	N.M.	10,000,000	400,000	25	*	
111	Sheridan	N.M.	2,000,000	200,000	10		
112	Silver Cliff, S	Colo.	5,000,000	400,000	12½	*	
113	Sonora Con	Mex.	5,000,000	200,000	25		
114	South Bulwer, G	Cal..	10,0 0,000	100,000	100	100,000	May 1881 .25
115	South Hite	Cal..	10,000,000	100,000	100	195,000	Jan. 1883 .05
116	South Pacific	Cal..	500,000	100,000	5		
117	State Line, S	Nev..	250,000	250,000	1		
118	St. Louis & Mex., S.	Mex.	5,000,000	500,000	10	*	
119	St. Louis & St. Elmo	Colo.	2,000,000	200,000	10		
120	St. L & St. Felipe, G S.	Mex.	1,500,000	150,000	10		
121	St L & Sonora, G. S.	Mex.	1,500,000	150,000	10		
122	St. Louis & Yavapai	Ariz.	3,000,000	300,000	10		
123	Sunday Lake, I	Mich	1,250,000	50,000	25		
124	Sullivan, G. S. L	Me...	500,000	100,000	5	125,000	Dec. 1882 .25
125	Sutro Tunnel	Nev..	20,000,000	2,000,000	10	*	
126	Tamarack, C	Mich.	1,0 0,000	40,000	25	520,000	Apl. 1885 3.00
127	Taylor-Plumas, G	Cal..	1,000,000	200,000	5	*	
128	Tioga Cons., G	Cal..	10,000,000	100,000	10	*	
129	Todos Santos, S	Mex.	1,000,000	100,000	100	325,000	Oct. 1882 .10
130	Tuscarora, S	Nev.	10,000,000	100,000	100	110,000	Oct. 1881 .15
131	Unadilla, S	Colo.	50,000,000	500,000	100	*	
132	Union Con., G S	Nev..	10,000,000	100,000	100	2,085,000	Apl. 1886 .25
133	United M. Lundy, G	Cal..	1,000,000	200,000	5		
134	Utah, S	Nev..	2,000,000	20,000	100	1,820,000	Aug 1886 .50
135	Vandewater	Nev..	20,000,000	200,000	100	*	
136	Washington	Ariz.	2,000,000	200,000	10		
137	Wellington, A	Nev..	100,000	50,000	2	*	
138	West Granite Mt., S.	Mon	5,000,000	500,000	10	*	
139	Whalen Copper	Nev..	2,5 0,000	100,000	25		
140	Whittier Dr'e Bull'n	Nev..	1,000,000	100,000	10		

G. Gold. S. Silver. L. Lead C. Copper. * Non-assessable. † This company, as the Western, up to Dec. 10th, 1881, paid $1,400,000. ‡ Non-assessable for three years. § The Deadwood previously paid $275,000 in eleven dividends, and the Terra $75,000. Previous to the consolidation in Aug, 1884, the California had paid $31,320,000 in dividends, and the Con. Virginia $42,936,00. ** Previous to the consolidation of the Copper Queen with the Atlanta, Aug., 1885, the Copper Queen had paid $1,350,000 in dividends.

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Highest and Lowest Prices per Share at which Sales were Made.												Sales.
	Oct. 16.		Oct. 18.		Oct. 19.		Oct. 20.		Oct. 21.		Oct. 22.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon													
Amie Con., Co													
Argenta	.17												110
Bassick, Co			.13										500
Belle Isle, Ne	.40		.40		.38		.40		.35		.36		4,450
Bodie Cons., Ca	3.00		2.90	2.75	2.60		2.65	2.60	2.60		2.60		4,400
Breece													
Bulwer, Ca	2.00		2.00		1.65		1.70	1.60	1.70	1.60	1.60		3,950
Caledonia			1.30										100
Carbonate Hill													
Chrysolite, Co	.53		.52		.51		.51		.51		.52	.51	3,100
Colorado Central													
Cons. Cal. & Va., Ne	3.00	2.90	3.05	2.85	3.80	3.60	3.75	3.50	5.00	4.90	7.75	5.00	5,462
Crown Point													
Deadwood													
Dunkin													
Eureka Cons., Ne					5.00	4.75	5.63				5.50		275
Father de Smet, Dk					.72								150
Freeland									1.30				100
Gould & Curry, Ne													
Grand Prize, Ne	.40												100
Green Mountain, Ca													
Hale & Norcross, Ne							1.10		1.20				725
Helena													
Homestake, Dk					19.00	18.00	18.38	18.00	17.75		18.00		925
Horn-Silver, Ut									2.00	1.75	1.80	1.75	750
Iron Hill													
Iron Silver, Co	2.15						2.15						310
Leadville C., Co	.46	.45	.46	.45	.47	.35					.38	.30	6,300
Little Chief, Co			.24				.23		.23		.25	.23	3,200
Little Pittsburg, Co	.61	.56	.52	.50	.52				.50		.52		3,400
Martin White, Ne			.25										100
Moulton													
Navajo, Ne	.85		.85	.80	.90		1.00	.98	1.00	.90	.90		5,000
North Belle Isle, Ne							3.50						200
Ontario, Ut					25.00								210
Ophir									2.50		2.10		300
Osceola													
Plymouth	16.38	16.25											25
Quicksilver Pref., Ca													
" Com., Ca													
Quincy													
Robinson Cons., Co													
Savage, Ne							2.50		2.55				400
Sierra Nevada, Ne	.80				.80		.80	.73	.90		.95	.90	4,800
Silver King, Ar													
Spring Valley, Ca													
Standard, Ca													
Stormont, Ut											.10		200
Tip Top, Ar													
Yellow Jacket	.96								1.25				600

NON-DIVIDEND-PAYING MINES.

Name and Location of Company.	Highest and Lowest Prices per Share at which Sales were Made.												Sales.
	Oct. 16.		Oct. 18.		Oct. 19.		Oct. 20.		Oct. 21.		Oct. 22.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Albion													
Alta													
American Flag													
Barcelona, c													
Bechtel Con., c													
Belvidere													
Belcher													
Best & B'licher, c. s											1.05		600
Big Pittsburg, s. L													
Bowman Silver													
Bull-Domingo, s. L													
Castle Creek												.07	1,000
Central Ariz'na, s													
Cons. Imperial													
Con. Pacific													
Cusi													
Decatur													
Durango, c													
Eastern Oregon													
Goodshaw, c													
Harlem M. & M. Co													
Harshaw													
Kossuth													
Lacrosse, c	.08							.08					1,100
Mariposa Pref., c													
" Com., c													
Mexican, c. s											.75		200
Mono	2.85	2.75	2.90								2.50		650
New Pittsburg													
North Standard, c													
N. Horn-Silv'r, s. L													
Ori'nt'l & Miller, s													
Plutus													
Potosi													
Rappahannock, c	.08		.08		.08						.08		
Red Elephant, s													
Ridge													
Silver Cliff, s													
Sonora Con													
South Bodie, c													
South Bulwer, c													
South Hite													
South Pacific													
State Line, 1 & 4, s													
" Nos. 2 & 3, s													
Sutro Tunnel	.07										.07		
Taylor Plumas													
Tioga													
Unadilla, s													
Union Cons., c. s	.50						.58				.56	.53	3,200
Utah													

Dividend shares sold, 50,132. Non-divdend shares sold, 19,250.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

Name of Company.	Closing Quotations.					
	Oct. 15.	Oct. 16.	Oct. 18.	Oct. 19.	Oct. 20.	Oct. 21.
Albion						
Alpha						
Alta	.45	.45	.50	.50	.60	.55
Argenta						
Bechtel						
Belcher						
Belle Isle						
Best & Belcher	.85	.85	.75	.90	1.12½	1.12½
Bodie	2.87½	2.87½	2.50	2.50	2.37½	2.50
Bullion						
Bulwer	1.87½	1.87½	1.62½	1.50	1.50	1.50
Chollar	.80	.80	1.25	2.25	1.87½	1.50
Con. Pacific						
Con. Cal. & Va.	3.12½	3.12½	3.75	3.62½	4.25	5.00
Crown Point	.95	.95	.95	1.00	1.12½	1.12½
Day						
Elko Cons						
Eureka Cons	4.50	4.50	4.75	5.25	5.00	5.00
Exchequer						
Gould & Curry	.55	.55	.55	.65	.80	.75
Grand Prize						
Hale & Norcross	.65	.65	.80	.95	1.12½	1.00
Independence						
Martin White						
Mexican	.60	.60	.60	.65	.80	.85
Mono	2.50	2.50	2.50	2.37½	2.37½	
Mount Diablo			2.50		2.50	
Navajo	.75	.75	.75	.75	.75	.75
Northern Belle						
North Belle Isle						
Ophir	1.50	1.50	1.50	1.75	2.00	2.00
Overman						
Potosi	.40	.40	.80	1.37½	1.00	.75
Savage	2.12½	2.12½	2.25	2.25	2.37½	2.50
Scorpion						
Sierra Nevada	.65	.65	.75	.75	.75	.85
Silver King						
Tip-Top						
Union Cons	.45	.45	.50	.50	.60	.50
Utah			.80	.85	1.00	1.25
Wales Cons						
Yellow Jacket	.80	.80	.85	.85	1.25	1.12½

BOSTON MINING STOCK QUOTATIONS.

	Oct. 15.		Oct. 16.		Oct 18.		Oct. 19.		Oct. 20.		Oct. 21.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Amie													
Allouez	2.50		2.75	2.50	2.63		2.75	2.63	2.75	2.50			1,450
Atlantic	11.50		12.		12.13		12.		12.		12.		682
Arnold			.55	.50	.60		.55		.60				3,400
Aztec													
Belle Isle													
Blue Ridge													
Bodie													
Bonanza D			.90										300
Boston & Montana			4.50										250
Bowman Silver			.08		.08		.08				.09		800
Bijou Cons													
Breece			.25								.24		500
Bulwer													
Calumet & Hecla	226.	225.	225.		225		225		225				103
Catalpa	.22		.22½		.22½		.23		.22				1,000
Cedar Spring													
Central													
Con. Pacific													
Con. Virginia													
Copper Falls													
Crescent	.09		.09		.09				.09				1,000
"Cusi"													
Dunkin	.27				.26		.27						1,600
Empire													
Eureka													
Franklin	14.13		14.		13⅞		13.75	13.50	13.75	13.50	13.75		760
Freeland													
Grand Prize													
Hanover													
Humboldt					.15				12½		12½		500
Huron	2.63		2.50				2.50		2.50		2.00		700
Mascot													
Mesnard					.30								100
Napa											.90		100
Ontario													
Osceola	18.	17.50	19.	18.	19.50		19.		19 25	18.50	19.25	19.	1,856
Pewabic							2.50				2.75		150
Quincy	57.	56.25	57.50	57.13	58.		59	58.	59.	58.	59	58.	509
Ridge	1.		1.										150
Robinson													
Security													
South Side					.25						.24		300
Standard													
Star					12½		12½		.10				500
Sutro Tunnel									.06		.06		800
Stormont			.12				.12				.12		300
Tamarack											.90		10
Winthrop													

plentiful than usual and can not be executed except at advancing prices, while the supply of floating stock is limited. Calumet & Hecla holds very steady at about $225; beyond that price, it does not seem to be wanted under the present uncertainty in regard to thr payment of dividends. Quincy is very strong and in good demand. Every order to buy it seems to advance the price, and although the sales have not been large, we note an advance of $3 a share for the week, with closing sales at $59, and the same bid for more of it. Franklin has been exceptionally dull and inclined to weakness. Just why, no one can tell, unless it is to be attributed to a lack of orders. It declined from $14@$13½, with later sales at $13⅝@$13¾. Atlantic advanced from $11@$12, with an unusually large business, and seems to be wanted at that figure. Osceola has beat them all in point of activity, and records an advance from $17½@$19¼, with sales of over 1800 shares, thus verifying our prediction of last week. Huron has been neglected; but one sale reported, and that at a decline of $½ from last sale of $2½. Allouez has been quite active at about last week's figures, $2½@$2¾. Arnold took a start this week, and walked

COAL STOCKS.

Name of Company.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Oct. 16. H.	Oct. 16. L.	Oct. 18. H.	Oct. 18. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.	Oct. 21. H.	Oct. 21. L.	Oct. 22. H.	Oct. 22. L.	Sales.
Barclay Coal														
Cameron Coal	50	18⅜		18⅛	18			18⅞	18	18⅞	18¾	18⅞	18⅛	3,360
Col., C. & I	10	28½	28¼	31⅛	28½	32⅝	31	32	31	31⅛	30¾	31¾	31¼	32,213
Ches. & O. RR	100	10	9¾	10⅛		10¾				10⅜				786
Consol. Coal	100													
Cumb. C. & I	100													
Del. & H. C	100	108	106¼	107¾	106¼	107⅛	107	107⅜	106¾	106⅛	105⅞	106⅞	105⅛	26,072
D., L. & W. RR	50	143¼	141⅛	143⅜	140⅛	141⅞	141¼	142¼	140⅞	141⅛	140¼	141⅝	139⅛	256,196
Elk Lick Coal Co														
Lehigh C. & N.†	50	52⅝	52¼	52¼	52	52⅝	52	52⅛	52⅜	52⅜	52¼			1,698
Lehigh Valley RR.†	50	57⅛		57⅛	57¼	57⅜		57½	57⅜	57⅞	57½			561
L. & W. C. & I. Co														
Maryland Coal	100					16	15¾			15¼	15	14¾		700
Montauk Coal	100													
Morris & Essex	50	140⅛		141¾		140⅛								183
New Central Coal	100	14⅛	14	15⅛	15	15	14⅜	14¾				14⅛		1,400
N. J. C. RR.	100	62½	59⅞	59	58⅛	53⅞	51⅜	53⅜	50½	51⅜	48¼	51	48⅛	383,686
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.†	50	60	59¾	60	59⅛	59¾	59⅛	59¾	59¼	59¾	59⅝			3,413
Ph. & R. RR.*	50	37	35⅞	36⅜	35¼	35¾	34⅞	35⅝	34½	35¼	33⅞	35¾	34½	230,305
Spring Mountain	50													
Westmoreland Coal†	50													

* Of the sales of this stock, 22,815 were in Philadelphia, and 207,490 in New York.
† The quotations for these stocks are not percentage, but actual price. Total sales, 940,573.

out of the rut, advancing to 60c. with sales of about 3000 shares. Southside, although no recorded sales were made at the Board, is in demand, and only a limited amount of stock offered; 22½c. was bid for it to-day, and only a small lot offered at 25c. In any active movement in the low-priced coppers, we look for very much higher prices for these two stocks.

The market for silver stocks is dull and inactive. Boston & Montana sold at $4½, same as last sale. At the Mining Exchange, Catalpa sold at 22c. Crescent, at 9c. Bowman, at 8@9c. Dunkin, at 26@27c. Breece, 25c. In the cheap copper stocks, there have been sales at about the ruling prices of last week. The sales for the week comprise 103 shares Calumet & Hecla, 421 shares Quincy, 360 Franklin, 672 Atlantic, 1835 Osceola, 100 Huron, 950 Allouez, and 3100 Arnold; total, 7541 shares, against 2800 the previous week.

St. Louis Mining Stocks. Oct. 20.

The market for all mining stocks has been extremely dull for the past week. Sheridan has been the only stock dealt in to any extent, and this is owing principally to the constant readiness of the ring manipulating it to purchase stock whenever offered on the call. The influx of miners and schemers, each one with properties that he claims have no superior, has caused former investors to steer shy of all new mining ventures for the time being; and, while there are more new ventures proposed than ever before, none of them has met with encouragement in this market lately.

Name of Company.	Location.	Bid.	Asked.
Adams, s. l	Colo	$5.50	$5.75
Cen. Continental, g. s.	Ark		1.00
Consolidated Silver, s.	Mo		1.00
Courtland	Colo		.65
Dandy, s	Colo		1.00
Durango, t	Mex		
Grand Duke	Colo		
Granite Mountain, s	Mont	38.00	39.50
Hope, s	Mont	40.00	43.00
Ideal, s. l	Colo	.90	1.00
Laclede		.55	.65
Peacock	N. M	3.50	4.00
Puritan			1.00
Quincy	Colo	.10	.20
Sheridan	N. M	5.35	5.50
Small Hopes Cons., s. l	Colo	7.50	8.00
St. Louis & Mexico	Mex		
St. Louis & San Fran	Mex		
St. Louis & Sonora, g. s.	Mex		.25
St. Louis & St. Elmo	Colo		1.00
St. Louis & Yavapai	Ariz	1.35	1.45

Pipe Line Certificates.

Messrs. Watson & Gibson, petroleum brokers, No. 49 Broadway, report as follows for the week:

Oil has been dull through the week, ranging in price from 64¾@67⅛c. The news early in the week was more bullish, as it showed a declining production in Washington and Shoustown. Business was so dull, however, that but little interest is manifested by the public in its feeble movement. The stock department of the Consolidated Stock and Petroleum Exchange absorbs the attention of the leaders, and the oil-pit is almost deserted. Several wild-cat wells are drilling in Greene County, southeast of Washington. Refined oil is dull at 6¾cents a gallon.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Oct. 16	65c.	65⅛c.	64⅞c.	65⅛c.	981,000
18	66	67⅛	65⅛	66	3,129,000
19	65⅞	66⅜	65¾	66	1,555,000
20	66	66¼	65¾	65⅞	1,017,000
21	66¼	66⅜	64⅞	66	796,000
22	65⅞	65⅞	64¾	65	1,769,000
Total sales					9,247,300

FREIGHTS.

The latest actual charters to October 22d, per ton of 2240 pounds:

To	From Philadelphia	From Baltimore.	From New York shipping ports.
Alexandria	.60@.70		
Annapolis	.65		
Baltimore	.58§		
Bangor	1.05*	1.15	1.10
Bath, Me	1.05*	1.15	.85*
Beverly	1.05*		.85*
Boston, Mass	1.05*	1.15	.85*
Bridgeport, Conn		1.00	.65
Brooklyn		1.00	.18§
Cambridge, Mass	1.05*		.85*3¶
Cambridgeport	1.05*		.85*3¶
Charleston, S. C	.85	.80@.85	
Charlestown	1.05*		.85*
Chelsea	1.05*		.85*
Com. Pt., Mass	1.05*		.85*
E. Boston	1.05*		.85*
East Cambridge	1.05*		.85*3¶
E.Gr'nwich, R. I			.80
Fall River	.90*	1.00	.80
Galveston	2.25@2.35	2.50	
Gardner	1.05*¶	1.15	
Georgetown, D.C.	.60@.70		
Gloucester	1.05*		
Hoboken		.95	
Jersey City		.95	
Lynn	1.05@1.15*		1.35
Marblehead	1.05*		
Milton		1.30	
Newark		1.15***	
New Bedford	.90*	1.10	.80@.85
New-Berne	.75		
Newburyport	1.20*	1.30	1.00*
New Haven		1.00	.65
New London		1.00	.90
New Orleans	2.00		
New York		1.00	.25§
Newark, N. J		1.15¶	
Newport	.90*		.75@.80
Norfolk, Va	.55@.60		
Norwich		1.15*¶	.80
Pawtucket			.75¶
Portland, Me	1.05*	1.15	.85*
Portsmouth, N.H.	1.15*	1.25	.95*
Portsmouth, Va	.55@ 60		
Providence, R. I.	.90*	1.00	.75@.80
Quincyport	1.05*		1.10
Richmond, Va	.65@.70		
Rockport	1.10*		
Roxbury, Mass	1.05†		
Saco	1.05¶		
Salem, Mass	1.05@1.10*	1.15	1.00
Savannah	1.00	1.00@1.05	
Somerset		1.00	.75
Washington	.60@.70		
Williamsb'g, N.Y.		1.00	
Wilmington, Del		1.00	
Wilmington, N.C.	.85	1.00	

* And discharging. † And discharging and towing. 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge. *** Old B. L.

CONTRACTS OPEN.

64 OIL WELL DRILLERS—PROPOSALS will be received by "Editor," care of Engineering and Mining Journal, New York City, for boring for oil in France. Maximum depth 600 meters, through calcareous and bituminous shales. State price per meter, contractor finding all plant except engines.

100 STEEL GUN-FORGINGS AND ARMOR—Proposals will be received by the Secretary of the Navy, Navy Department, Washington, D. C., until December 10th, for about 1310 tons of steel gun-forgings, and about 4500 tons of steel armor plates.

101 MACHINERY FOR CRUISERS AND gunboats—Proposals will be received by the Secretary of the Navy, Navy Department, Washington, D. C., until November 24th, for the construction and erection on board the vessels of engines, boilers, and appurtenances, complete in all respects.

110 LIGHTING APPARATUS—PROPOSALS will be received by Capt. George H. Cook, Depot Quartermaster's office, David's Island, N. Y. H., until October 25th, for furnishing and putting up a complete apparatus for lighting the new Mess-Hall at David's Island, with the Gilbert & Barker Manufacturing Co.'s system. Envelopes containing proposals to be marked "Proposals for Apparatus for Lighting Mess-Hall."

112 DREDGING — SEPARATE SEALED proposals, in triplicate, will be received at the Engineer Office, U. S. Army, Newport, R. I., until October 27th, 1886, for dredging in Hyannis Harbor, Mass.; Pawtucket River, R. I.; Providence River, R. I.; Pawcatuck River, R. I., and Boom, and the removal of Green Jacket Shoal, Providence, R. I.

114 RIP-RAP GRANITE—SEPARATE sealed proposals, in triplicate, will be received at the Engineer Office, U. S. Army, Newport, R. I., until October 27th, for furnishing rip-rap granite for the eastern jetty at Nantucket, Mass., and the eastern breakwater at Stonington, Conn.

115 ROCK EXCAVATION — PROPOSALS will be received at the U. S. Engineer Office, Custom-House, Cincinnati, O., until October 26th, for breaking up and removing rocks from the channel of the Ohio River, at the Grand Chain.

116 WATER-WORKS—SEALED PROPOSALS for the construction of works for the water supply of the city of Portland, Oregon, will be received at the office of the Water Committee, Portland, Oregon, until 12 M., December 15th, 1886. These works will be constructed according to the printed specifications dated August 24th, 1886, and will include thirty-one miles of wrought-iron pipe, 27 and 22¼ inches in diameter; three iron bridges; two thousand feet of submerged pipe under and across the Willamette River; a reservoir within the city limits, and all other works described in the specifications, excepting those specified as "Head-works," which are now under contract. The specifications provide that the wrought-iron pipes shall be made of iron sixty inches in width, but proposals will also be received for furnishing the iron, and for manufacturing the entire length of pipe, of iron either forty-two, forty-eight, or sixty inches in width. Proposals will also be received for the construction of all the works described in the specifications, excepting the Head-works, for a lump sum, the contractor being at liberty to use iron for the pipes either forty-two, forty-eight, or sixty inches in width, the whole work to be completed within eighteen months after signing the contract. In these modified forms of proposals the width of iron proposed will be stated in the bids, and a copy of this advertisement will be attached to each bid. The proposals will be indorsed on the outside of the sealed envelope, "Proposals for Construction of Water-Works," and addressed to Philip C. Schuyler, Clerk of the Water Committee, Portland, Oregon. The specifications and such further information as may be required will be furnished on application by ISAAC W. SMITH, Engineer of the Water Committee, Portland, Oregon.

117 MINERAL OIL—PROPOSALS WILL be received at the Quartermaster's Department, Jeffersonville, Ind., until November 11th, for furnishing and delivering 100,000 gallons Mineral Oil at the Jeffersonville Depot, in cases of two five-gallon cans each.

Deliveries to commence by December 1st, 1886, and be completed by January 15th, 1887, in such quantities and at such times between those dates as may be agreed upon.

WANTED—THE ATLAS OF PLATES TO KARSTEN'S EISENHUTTENKUNDE, Berlin, 1841. Advertiser has the text. Address
KARSTEN,
Care of Engineering and Mining Journal.

THE SMELTING OF COPPER
SWANSEA DISTRICT OF SOUTH WALES
From the Time of Elizabeth to the Present Day.
By Colonel Grant-Francis, F.S.A., author of "Swansea Charters," etc. Second Edition. Beautifully illustrated. London, 1881. Demy 8vo. 193 pages. Half bronze roan, with malachite insides and gilt top. Price $4. Quarto, large paper, half bronze roan, etc., $6. Among the illustrations are a number of reproductions of scarce engravings. Address
THE SCIENTIFIC PUBLISHING CO.,
27 Park Place, P.O. Box 1833,
New York City.

PETERS'S MODERN AMERICAN METHODS OF COPPER SMELTING. The best in the language. Price, $4.
SCIENTIFIC PUBLISHING CO.,
27 Park Place, New York.
P.O. Box 1833.